1 **Cairo Governorate** — Western Cairo Educational Zone
Mathematics Inspection

Answer the following questions :

1 Choose the correct answer :

1 In the opposite figure :

AC = ... cm.

(a) 4   (b) 6

(c) 8   (d) 2

2 If $\triangle$ ABC is right-angled at A and AB = AC , then m $(\angle$ B) = ...

(a) 30°   (b) 45°   (c) 60°   (d) 90°

3 In $\triangle$ ABC , if AB = 6 cm. , AC = 7 cm. , then BC $\in$ ....

(a) $]6 , 13]$ (b) $[6 , 7]$ (c) $]1 , 13[$ (d) $[1 , 7[$

4 In $\triangle$ XYZ , if XY < XZ , then ....

(a) m $(\angle$ Y) $\leq$ m $(\angle$ Z)   (b) m $(\angle$ Y) > m $(\angle$ Z)

(c) m $(\angle$ Y) = m $(\angle$ Z)   (d) m $(\angle$ Z) > m $(\angle$ Y)

5 If $\triangle$ ABC is right-angled at B , m $(\angle$ A) = 55° , then the number of axes of symmetry of $\triangle$ ABC equals ....

(a) 1   (b) 2   (c) 3   (d) zero

6 The triangle in which the measures of two angles of it are 42° and 69° is .... triangle.

(a) an isosceles   (b) an equilateral   (c) a scalene   (d) a right-angled

2 Complete the following :

1 Any point on the axis of symmetry of a line segment is .... from its terminals.

2 The longest side in the right-angled triangle is ....

3 The point of intersection of the medians of the triangle divides each of them by the ratio .... : .... from the vertex.

4 The measure of any exterior angle of an equilateral triangle equals ....°

5 The sum of the lengths of any two sides in a triangle is .... the length of the third side.

3 [a] In the opposite figure ;

△ABC is an equilateral triangle , $\overrightarrow{DF}$ // $\overline{AC}$

Find by proof : m (∠ D)

[b] In the opposite figure :

m (∠ ABC) = 90° , m (∠ C) = 30°

, AC = 10 cm. , AD = DC

Find : The perimeter of △ ABD

4 [a] In the opposite figure :

AB < AD , BC < CD

Prove that : m (∠ ABC) > m (∠ ADC)
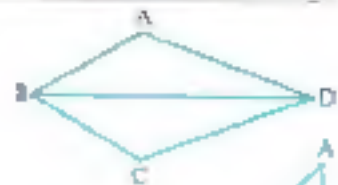
[b] In the opposite figure :

m (∠ ABC) = 90° , $\overline{BD} \perp \overline{AC}$

, AB = BC

Prove that : △ DCB is an isosceles triangle.
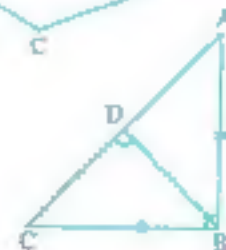
5 [a] XYZ is a triangle in which m (∠ X) = 60° , m (∠ Y) = 50°

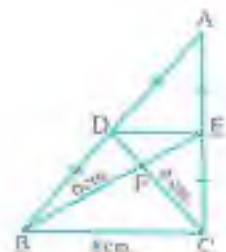Order the lengths of the sides of the triangle descendingly.

[b] In the opposite figure :

ABC is a triangle in which D , E are the midpoints of $\overline{AB}$, $\overline{AC}$

, FC = 4 cm. , FB = 6 cm.

, BC = 8 cm.

Find : The perimeter of △ DFE

2 ‹ Cairo Governorate ›

Hadayeq El-Koba Zone
Al Nokrashy Governmental Lang. School

Answer the following questions :

1 Choose the correct answer from those given :

1 A triangle has one line of symmetry , the lengths of two sides are 4 cm. and 8 cm. , then the length of the third side is .... cm.

(a) 3   (b) 4   (c) 8   (d) 6

2 The point of intersection of the medians of the triangle divides each median in the ratio of .... from the base.

(a) 2 : 1   (b) 2 : 3   (c) 1 : 2   (d) 1 : 3

3 If m ($\angle$ A) = 50°, then the measure of its reflex angle is ─────

(a) 40° (b) 130° (c) 310° (d) 180°

4 If the length of the side of an equilateral triangle is 10 cm., then the length of its height is ───── cm.

(a) 10 (b) 5 (c) $5\sqrt{3}$ (d) 6

5 In $\triangle$ ABC, if AB = 6 cm., AC = 7 cm., then the length of $\overline{BC} \in$ ─────

(a) [6 , 7] (b)]1 , 7[(c) [1 , 13] (d)]1 , 13[

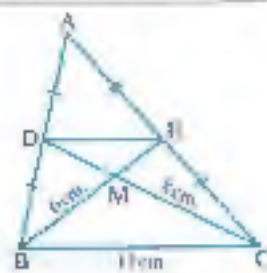6 **In the opposite figure :**

$X + y =$ ─────

(a) 180°

(b) 360°

(c) 240°

(d) 280°

2 Complete :

1 If the measures of two angles in a triangle are different, then the greater angle in measure of them is ─────

2 In the triangle ABC, if m ($\angle$ A) = 50°, m ($\angle$ B) = 60°, then the longest side is ─────

3 The median drawn from the vertex angle of an isosceles triangle ───── and ─────

4 In $\triangle$ ABC, if m ($\angle$ A) = 30°, m ($\angle$ B) = 90°, then AC = ───── BC

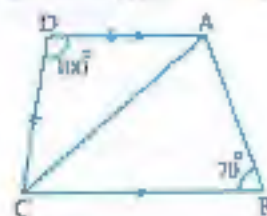5 The perpendicular bisector of a line segment is called ─────

3 [a] In the opposite figure :

In $\triangle$ ABC : $\overline{BE}$, $\overline{CD}$ are two medians, MB = 6 cm.

, BC = 12 cm., MC = 8 cm.
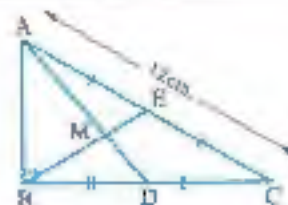
Find : The perimeter of $\triangle$ MDE

[b] **In the opposite figure :**

$\overline{AD} \parallel \overline{BC}$, AD = DC

, m ($\angle$ D) = 100°, m ($\angle$ B) = 70°

Prove that : 1 AC > AB   2 $\triangle$ ABC is isosceles.

4 [a] In the opposite figure :

$\triangle$ ABC is right-angled at B

, E and D are the midpoints of $\overline{AC}$, $\overline{BC}$ respectively

, AC = 12 cm.

Find : The length of each of $\overline{BE}$, $\overline{ME}$

[b] In the opposite figure :

ABCD is a quadrilateral
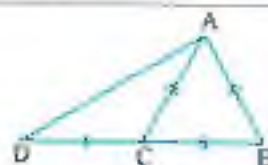
, AB = AD = 5 cm.

, BC = 2 cm. , DC = 4 cm.

Prove that : m (∠ ABC) > m (∠ ADC)

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5 **[a] In the opposite figure :**

AB = BC = AC = CD

Prove that : m (∠ BAD) = 90°

[h] In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, m (∠ BAC) = 80°

, m (∠ DAC) = 30°

Prove that : BC > AB

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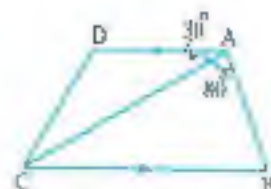
3 **Cairo Governorate**

New Cairo Educational Zone
Dr. Nermien Ismail Schools

Answer the following questions :

1 Choose the correct answer :

1 In △ ABC , if AB = AC , m (∠ B) = 40° , then m (∠ A) = ⋯⋯⋯⋯

(a) 70°　　　　(b) 55°　　　　(c) 100°　　　　(d) 40°

2 The point of concurrence of the medians of the triangle divides each median at the ratio ⋯⋯⋯⋯ from the vertex.

(a) 1 : 2　　　　(b) 2 : 1　　　　(c) 2 : 3　　　　(d) 1 : 3

3 In △ ABC , if AB = 7 cm. , BC = 10 cm. , then the length of $\overline{AC}$ must satisfy which of the following inequalities ?

(a) 3 ≤ AC ≤ 17　　(b) 3 < AC < 17　　(c) 10 < AC < 20　　(c) 14 < AC < 20

4 If △ ABD is obtuse-angled at B and C is the midpoint of $\overline{BD}$, then the longest side in △ ABD is ⋯⋯⋯⋯

(a) $\overline{AB}$　　　　(b) $\overline{AC}$　　　　(c) $\overline{AD}$　　　　(d) $\overline{BD}$

5 In △ ABC , if m (∠ A) = 64° , m (∠ B) = 35° , then the longest side of the triangle is ⋯⋯⋯⋯

(a) $\overline{AB}$　　　　(b) $\overline{AC}$　　　　(c) $\overline{BC}$　　　　(d) otherwise.

6 ABCD is a rectangle , M is the point of intersection of its diagonals , if the length of the diagonal is 6 cm. , then the length of the median $\overline{AM}$ is .... cm.

(a) 3   (b) 6   (c) 9   (d) 12

2 Complete each of the following :

1 The length of the side which is opposite to the angle of measure 30° in the right-angled triangle equals .... the length of the hypotenuse.

2 In the right-angled triangle , the longest side is the ....

3 The straight line drawn from the vertex of the isosceles triangle , perpendicular to the base .... this vertex.

4 The measure of the exterior angle of the equilateral triangle equals ....°

5 The number of axes of symmetry of the isosceles triangle is ....

3 [a] In the opposite figure :

ABC is a triangle , $AB = AC$, $m (\angle B) = (X + 5)°$

, $m (\angle C) = (2 X - 15)°$

Find : $m (\angle A)$ (show all of your work)

[b] In the opposite figure :

N is the point of concurrence of the medians of the triangle XYZ

, $LZ = 15$ cm. , $YM = 18$ cm.

, $XY = 20$ cm.

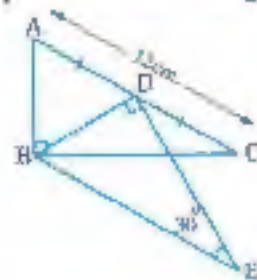Find : The perimeter of the triangle NLY

[c] In the opposite figure :

$m (\angle ABC) = m (\angle BDE) = 90°$

, D is the midpoint of $\overline{AC}$

, $m (\angle E) = 30°$, $AC = 12$ cm.

Find with proof : The length of $\overline{BE}$

4 [a] In the opposite figure :

ABCD is a quadrilateral in which :

$AB = 5$ cm. , $BC = 4$ cm. , $CD = 6$ cm.

, $AD = 7$ cm.

Prove that : $m (\angle ABC) > m (\angle ADC)$

[b] In the opposite figure :

AB = AC = CB = CD

Prove that : $\overline{AB} \perp \overline{AD}$

[c] XYZ is a triangle in which : XY = 10 cm , YZ = 6 cm, and XZ = 8 cm.
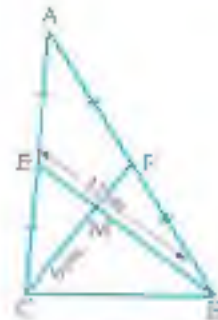Arrange the measures of the angles of the triangle.

[d] In the opposite figure :

ABC is a triangle in which : F , E are the midpoints

of $\overline{AB}$ and $\overline{AC}$ respectively

, EB = 12 cm.

, MC = 6 cm,

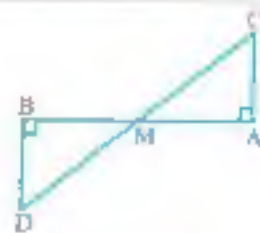Find with proof : The length of each of $\overline{EM}$ and $\overline{MF}$

5 [a] In the opposite figure :

$\overline{DC} \cap \overline{AB} = \{M\}$

, m (∠ A) = m (∠ B) = 90°

Prove that : DC > AB

[b] ABC is a triangle in which : m (∠ A) = (6 X)°
, m (∠ B) = (4 X – 9)° , m (∠ C) = 3 (X – 2)°
Arrange the lengths of the sides of the triangle.

[c] In the opposite figure :

$\overrightarrow{AD} \parallel \overrightarrow{BC}$, $\overrightarrow{BD}$ bisects ∠ ABC

Prove that : Δ BAD is an isosceles triangle.
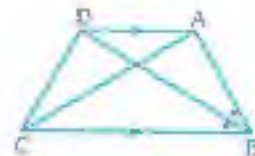
4   Giza Governorate   South Giza Administration

Answer the following questions :

1 Choose the correct answer :

1 If the measures of two angles of a triangle are 40° , 100° , then the triangle
is .... triangle.

(a) an isosceles   (b) an equilateral   (c) a scalene   (d) a right-angled

2 The angle whose measure is more than 90° and less than 180° is .... angle.

(a) an acute   (b) an obtuse   (c) a straight   (c) a reflex

3 If the lengths of two sides in an isosceles triangle are 7 cm. and 3 cm. , then the length of the third side is ·············· cm.

(a) 3   (b) 10   (c) 7   (d) 4

4 In $\triangle ABC$, if $m(\angle B) = 120°$, then the longest side in it is ··············

(a) $\overline{BC}$ (b) $\overline{AC}$ (c) $\overline{AB}$ (d) its median.

5 If $\triangle ABC$ is right-angled at B , AB = 3 cm. , BC = 4 cm. , then the length of the median from B is ·············· cm.

(a) 5   (b) 4   (c) 2.5   (d) 6

6 In $\triangle ABC$, if $m(\angle A) = 30°$, $m(\angle B) = 90°$ and AC = 10 cm. , then BC = ————

(a) 20 cm.   (b) 15 cm.   (c) 10 cm.   (d) 5 cm.

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2 Complete each of the following :

1 The angle of measure 70° complements an angle of measure ··············°

2 In $\triangle ABC$, if AB = 3 cm. , BC = 5 cm. , then AC $\in$] ·············· , ·············· [

3 If $\overline{AB} \equiv \overline{CD}$ and AB = 6 cm. , then AB + CD = —————— cm.

4 The bisector of the vertex angle of an isosceles triangle ·············· and ————

5 The point of intersection of the medians of the triangle divides each median in the ratio ·············· : ·············· from the vertex.

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3 [a] In the opposite figure :

$\overrightarrow{AD} \parallel \overrightarrow{BC}$, $m(\angle BAC) = 80°$

and $m(\angle DAC) = 40°$

Prove that : BC > AC
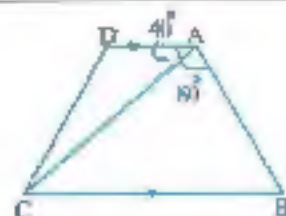
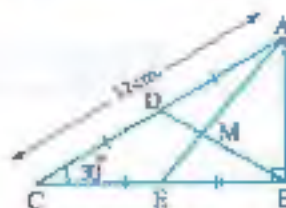**[b] In the opposite figure :**

$\triangle ABC$ is right-angled at B , $m(\angle C) = 30°$

, D is the midpoint of $\overline{AC}$

, E is the midpoint of $\overline{BC}$, AC = 12 cm.

Find : The length of each of $\overline{BD}$, $\overline{BM}$ and $\overline{AB}$
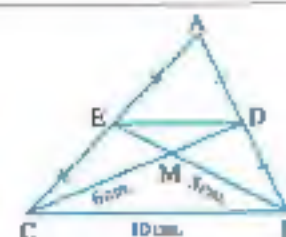
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4 [a] In the opposite figure :

D and E are the midpoints of $\overline{AB}$ and $\overline{AC}$ respectively

, BC = 10 cm. , MB = 5 cm. and MC = 6 cm.
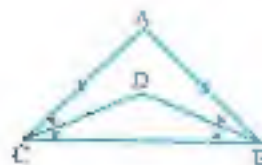
Find : The perimeter of $\triangle MDE$

(b) In the opposite figure :

$AB = AC$, $\overrightarrow{BD}$ bisects $\angle ABC$

and $\overrightarrow{CD}$ bisects $\angle ACB$

Prove that : $\triangle DBC$ is an isosceles triangle.

5 [a] In the opposite figure :

ABC is a triangle in which :

$AB > AC$ and $\overrightarrow{DE} \parallel \overline{BC}$
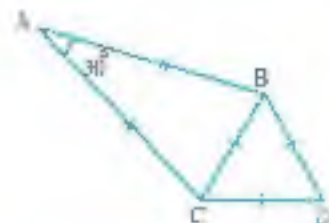
Prove that : $m (\angle ADE) > m (\angle AED)$

[b] In the opposite figure :

$m (\angle A) = 30°$, $AB = AC$

and $\triangle DBC$ is equilateral.

Find : $m (\angle ABD)$

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5   **Giza Governorate**   Boulaq El Dakrour Directorate
Dar El Hanan Lang. Sch. For Girls

Answer the following questions :

1 Choose the correct answer :

1 The lengths 9 cm. , 4 cm. and .... may be the side lengths of an isosceles triangle.

  (a) 9 cm.   (b) 13 cm.   (c) 5 cm.   (d) 4 cm.

2 In $\triangle ABC$, if $m (\angle B) = 130°$, then the longest side of it is ....

  (a) $\overline{BC}$ (b) $\overline{AC}$ (c) $\overline{AB}$ (d) Its median.
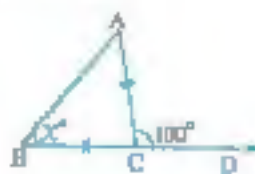
3 In the opposite figure :

$CA = CB$, $m (\angle B) = x°$

, $m (\angle ACD) = 100°$ where $C \in \overline{BD}$

, then $x = $ ....

  (a) 50°   (b) 100°   (c) 150°   (c) 200°

4 The measure of the exterior angle of an equilateral triangle equals ....

  (a) 30°   (b) 60°   (c) 90°   (d) 120°

5 In $\triangle ABC$, if $AB = 6$ cm. and $AC = 7$ cm. , then $BC \in$ ....

  (a) $]6 , 13[$ (b) $[6 , 7]$ (c) $]1 , 13[$ (d) $[1 , 7[$

e **In the opposite figure :**

$AD = DC$, $m (\angle C) = 30°$

, $m (\angle ABC) = 90°$, $AB = 5$ cm.

, then the perimeter of $\triangle ABD = $ ·········· cm.

(a) 5   (b) 15   (c) 20   (d) 25

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2 **Complete the following :**

1 ABC is a triangle in which $AB = AC$ and $m (\angle A) = 60°$, if its perimeter = 18 cm,

, then BC = ·········· cm.

2 The number of the axes of symmetry of the equilateral triangle equals ··········

3 The longest side of the right-angled triangle is the ··········

4 If the angles of a triangle are congruent , then the triangle is ··········

5 In $\triangle ABC$, if $AB > BC$, then $m (\angle A)$ ·········· $m (\angle C)$

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3 **[a] In the opposite figure :**

ABC is a triangle in which $AB = 14$ cm.

, $AC = 18$ cm. , $BC = 20$ cm.

, E is the midpoint of $\overline{AC}$

, F is the midpoint of $\overline{AB}$ and $\overline{AD} \perp \overline{BC}$

Find : The perimeter of $\triangle DEF$

[b] In the opposite figure :

ABC is a triangle in which $AC = BC$

, $\overrightarrow{AD} \parallel \overline{BC}$, $m (\angle DAC) = 30°$

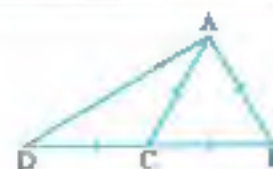**Find with proof :** The measures of the angles of $\triangle ABC$

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4 **[a] In the opposite figure :**

$AB = BC = AC = DC$
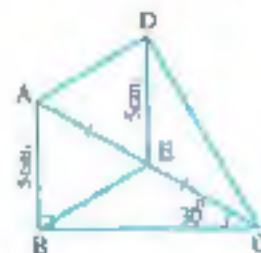
Prove that :

$m (\angle BAD) = 90°$

[b] In the opposite figure :

$m (\angle ABC) = 90°$, E is the midpoint of $\overline{AC}$

, $m (\angle ACB) = 30°$

, $AB = DE = 5$ cm.

Prove that : $m (\angle ADC) = 90°$

5 [a] In $\triangle ABC$, $m(\angle A) = 40°$, $m(\angle B) = 75°$, $m(\angle C) = 65°$

, arrange the lengths of the sides of this triangle descendingly.

[b] In the opposite figure :

ABCD is a square , $E \in \overline{BC}$

where $m(\angle FDC) = X°$ and $m(\angle FEC) = 2X°$

, $\overline{DF} \perp \overline{AE}$, AF = 3 cm.

Calculate : The area of the square ABCD

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6 | **Alexandria Governorate** | El-Montazah Educational Zone
Leaders Language School

Answer the following questions :

1 Complete :

1. If $\triangle ABC$ is a right-angled triangle at B , $m(\angle A) = 30°$, AC = 10 cm.
   , then CB = ———— cm.

2. In $\triangle ABC$, $m(\angle A) = m(\angle B) = m(\angle C)$, then the measure of the exterior angle equals ————°

3. In $\triangle ABC$, AB = AC , $m(\angle B) = X + 30°$, $m(\angle C) = 2X + 5°$, then X = ————°

4. In a triangle , if two angles are unequal in measure , then the greater angle in measure is opposite to ————

5. In any triangle , the sum of the lengths of any two sides ———— the length of the third side.

2 Choose the correct answer :

1. If $\overline{AD}$ is a median of $\triangle ABC$ and M is the point of concurrence of the medians , then AM = ———— AD

   (a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{3}{2}$ (d) 2

2. The measure of one of the base angles of an isosceles triangle is 65° , then the measure of its vertex angle equals ————°

   (a) 65   (b) 50   (c) 130   (d) 55

3. In the triangle ABC , if $m(\angle A) = 50°$, $m(\angle B) = 60°$, then the longest side is ————

   (a) $\overline{AB}$ (b) $\overline{BC}$ (c) $\overline{AC}$ (d) 110 cm.

4. The numbers which can not be side lengths of a triangle are ————

   (a) 3 , 3 , 3   (b) 3 , 3 , 4   (c) 3 , 3 , 5   (d) 3 , 3 , 6

5 The number of the axes of symmetry of the scalene triangle is

(a) 1   (b) 2   (c) 3   (d) 0

6 If $\triangle$ XYZ is right-angled at Y , then XZ .... YZ

(a) <   (b) ≤   (c) >   (d) =

3 a] **In the opposite figure**

Arrange the angles of $\triangle$ ABC descendingly
due to their measures.
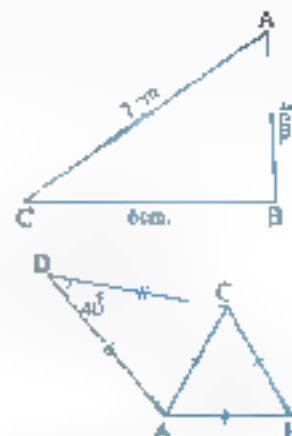
[b **In the opposite figure :**

m ($\angle$ D) = 40° , DA = DC
and $\triangle$ ABC is an equilateral triangle
Find : m ($\angle$ DCB)

4 a **In the opposite figure ,**

ABC is a triangle
, F and E are the midpoints of AB and $\overline{AC}$ respectively
If BE = 12 cm , CM = 6 cm
, BC = 10 cm
, then find : The perimeter of $\triangle$ MEF

b **In the opposite figure :**

$\overline{AD} \parallel \overline{BC}$, m ($\angle$ CAB) = 70°
, m ($\angle$ DAC) = 50°
Prove that : BC > AC

5 [a] **In the opposite figure :**

m ($\angle$ ABC) = m ($\angle$ BDE) = 90°
, m $\angle$ E = 30°
, D is the midpoint of AC
Prove that : AC = BE
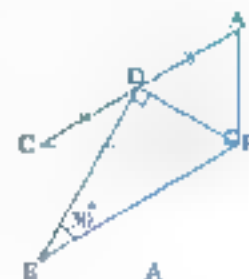
[b] **In the opposite figure :**

ABC is a triangle in which
AB = AC , $\overline{XY} \parallel$ CB
Prove that , $\triangle$ AXY is an isosceles triangle

Alexandria Governorate

Answer the following questions .

1 Choose the correct answer :

1. An isosceles triangle has two sides of lengths 6 cm and 12 cm , then the length of the third side equals ...... cm.

   (a) 6   (b) 9   (c) 12   (d) 18

2. In $\triangle$ XYZ , if m ($\angle$ Y) = 115° , then the longest side is

   (a) $\overline{XY}$ (b) $\overline{YZ}$

   (c) $\overline{ZX}$ (d) the median of the triangle

3. The lengths 5 cm , 7 cm and ...... cm are lengths of sides of a triangle

   (a) 8   (b) 9   (c) 12   (d) 10

4. The triangle having two angles of measures 74° and 53° ...... triangle

   (a) isosceles   (b) an equilateral   (c) scalene   (d) right angled

5. The intersection point of the medians of a triangle divides each median by the ratio ...... from the base

   (a) 1   (b) 2   (c) 3   (d) 4

6. If two sides of a triangle have unequal lengths , then the longer side is opposite to the angle of the ...... measure from that is opposite to the other side

   (a) greater   (b) smaller   (c) equal   (d) otherwise

2 Complete each of the following :

1. The length of the median of the right angled triangle drawn from the vertex of the right angle equals ...... the length of the hypotenuse

2. The number of the axes of symmetry of an isosceles triangle is ......

3. The measure of the exterior angle of the equilateral triangle equals ...... °

4. The two angles of the base of an isosceles triangle are ......

5. The sum of the measures of the accumulative angles at a point equals ...... °

3 a In the opposite figure .

   If E is the midpoint of $\overline{AC}$ and D is the midpoint of $\overline{BC}$

   , ED = 5 cm , MD = 3 cm and BE = 15 cm

   , find : The perimeter of $\triangle$ AMB

  b ABC is a triangle in which m ($\angle$ B) = 40° , m ($\angle$ C) = 80°

   Arrange its side lengths ascendingly

Geometry

4 **a)** In the opposite figure :
$\overrightarrow{AD} \parallel \overline{BC}$
, m($\angle$ EAD) = 75°
and m($\angle$ DAC) = 35°
Prove that : AC > AB

b) In the opposite figure :
$\overline{DE} \parallel \overline{AC}$
, m $\angle$ EDA) = 34°
and m $\angle$ DBC) = 68°
Prove that : $\triangle$ ABC is an isosceles triangle
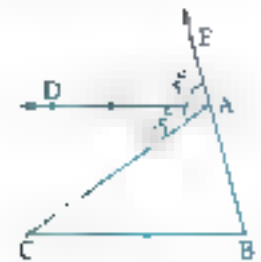
5 **[a]** In the opposite figure :
If XY > XL
, YZ > ZL
, prove that : m($\angle$ XLZ) > m($\angle$ XYZ)

[b In the opposite figure :
m($\angle$ B) = 90° , m($\angle$ ACB) = 30°
, E is the midpoint of AC and AB = DE = 6 cm
Find   1) The length of AC
   2 m($\angle$ ADC)

El-Kalyoubia Governorate
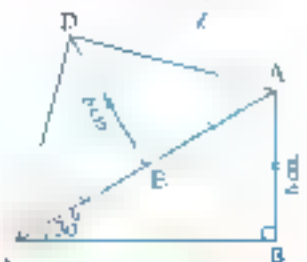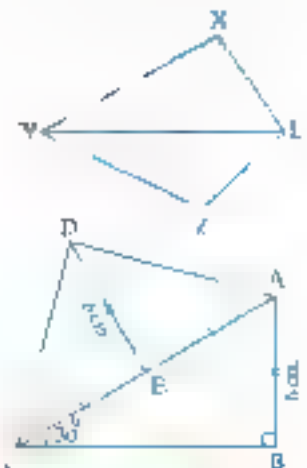
Answer the following questions

1 Choose the correct answer :

1 In any isosceles triangle , the type of the base angles is
(a) acute   (b) right.   (c) obtuse.   (d) reflex

2 The medians of the triangle intersect at ....
  4 points.   b 3 points.   c 2 points.   d a point.

3 ABC is a triangle in which m($\angle$ A) = 100° , then the greatest side in length in the triangle
is
(a) AB   (b) $\overline{AC}$ (c) $\overline{BC}$ (d) BD

4 The numbers which can be lengths of sides of a triangle are
(a) 0 , 3 , 5   (b) 3 , 3 , 5   (c) 3 , 3 , 6   (d) 3 , 3 , 7

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5 The triangle which has three axes of symmetry is ....

(a) scalene.　　　(b) isosceles.　　　(c) right-angled.　　　(d) equilateral

6 If △ ABC is an equilateral triangle , then m (∠ B) = ...

(a) 30°　　　(b) 60°　　　(c) 70°　　　(d) 90°

2 Complete :

1 In △ ABC , if the point D is the midpoint of $\overline{AB}$ and the point E is the midpoint of $\overline{AC}$, then DE = ... BC

2 The base angles of the isosceles triangle are .... in measure

3 In the triangle , the smallest angle in measure is opposite to .... side in length

4 In the triangle ABC , if AB = AC , m (∠ A) = 70° , so m (∠ C) = ... °

5 The point of concurrence of the medians of the triangle divides each median in the ratio of .... from the base

3 [a] In the opposite figure :

$\overline{AD}$ // BC , m (∠ BAC) = 70°

, m (∠ DAC) = 30°

Prove that AC > BC
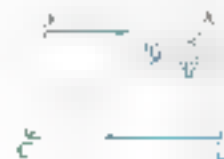
[b] In the opposite figure :

AB = 4 cm. , BC = 6 cm

, AC = 7 cm.

Arrange the measures of the angles of the triangle ABC descending.

4 [a] In the opposite figure

m (∠ A) = 50° , AB = AC

and △ DBC is an equilateral triangle

Find : m (∠ ABD)

[b] In the opposite figure :

△ ABC is right-angled at B , m (∠ C) = 30°

, D is the midpoint of $\overline{AC}$

, E is the midpoint of BC , AC = 7 cm

Find : The length of each of $\overline{BD}$, $\overline{BM}$ and AB

Geometry

5 [a] In the opposite figure :

ABC is a triangle in which

$AB = AC$, $\overrightarrow{AE}$ bisects $\angle$ BAC

, $AE \cap BC = \{E\}$, $D \in AE$

Prove that : 1 $BE = \frac{1}{2} BC$

2 $BD = CD$
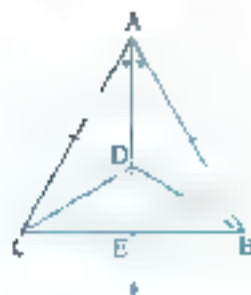
[b] In the opposite figure

ABC is a triangle in which

$m (\angle B) = m (\angle C)$,

, $AB = (2 X - 1)$ cm

, $AC = (X + 3)$ cm , $BC = (9 - X)$ cm

Find : The perimeter of the triangle ABC

Answer the following questions :

1 Complete the following ·

1 The base angles of the isosceles triangle are

2 In $\triangle ABC$, If $AB \perp BC$ and $AB = BC$, then $m (\angle A) =$

3 In $\triangle ABC$, if $AB > AC$, then $m (\angle C)$ .... $m (\angle B)$

4 The triangle whose side lengths are $(2 X - ...)$ cm , $(X + 3)$ cm , 7 cm becomes an equilateral triangle when $X =$ .... cm.

5 In the opposite figure :

$AC =$ .... BZ
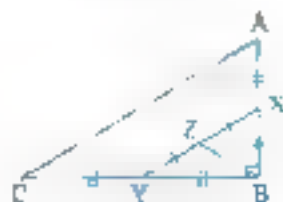
2 Choose the correct answer from those given :

1 The sum of lengths of any two sides in a triangle is .... the length of the third side

(a) smaller than   (b) greater than

(c) equal to   (d) twice

2 The measure of the exterior angle of the equilateral triangle equals

(a) 30° (b) 60° (c) 90° (d) 120°

3 The length of the hypotenuse of the right-angled triangle equals .... the length of the median drawn from the vertex of the right angle

(a) third (b) quarter (c) half (d) twice

4 The lengths of two sides in a triangle are 4 cm. and 2 cm. and it has one axis of symmetry , then the length of the third side is

(a) 4 cm. (b) 5 cm. (c) 9 cm. (d) 3 cm

5 The quadrilateral ABCD in which BD is an axis of symmetry of AC may be ....

(a) rhombus. (b) rectangle. (c) parallelogram (d) trapezium

6 In the opposite figure :

$x + y =$

(a) 60° (b) 180°

140° (d) 80°
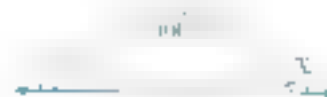
3 [a] In the opposite figure :

$AB = BC$, $m (\angle ABD) = 40°$

and $AC \parallel DE$

Find : $m (\angle EDC)$
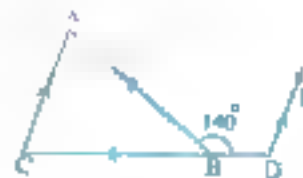
[b] In the opposite figure :

$AB = AC$, $BC = 10$ cm.

, $m (\angle BAD) = 30°$

and $AD \perp BC$

Find 1 The length of each of BD and AD

2 The area of $\triangle ABC$
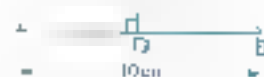
4 a In the opposite figure :

ABC is a triangle , X is the midpoint of $\overline{AB}$

, Y is the midpoint of BC , XY = 5 cm.

, $\overline{XC} \cap AY = \{M\}$ where CM = 8 cm.

, YM = 3 cm

Find : The perimeter of $\triangle MXY$

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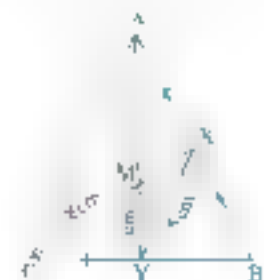
[b In the opposite figure

XY = XZ , m (∠ XYL) = 120° , L ∈ $\overset{\frown}{ZY}$

Prove that :

△ XYZ is an equilateral triangle
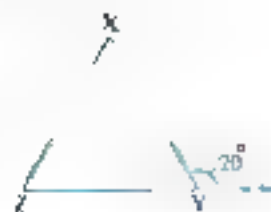
5 (a) In the opposite figure .

XYZ is a right-angled triangle

at Y and M ∈ $\overset{\frown}{YZ}$

Prove that : XZ > XM

(b) In the opposite figure :

ABCD is a quadrilateral in which

m (∠ B) = 90° , E is the midpoint of AD

, F is the midpoint of CD

, m (∠ ACB) = 30° and EF = 4 cm

Find by proof : The length of AB
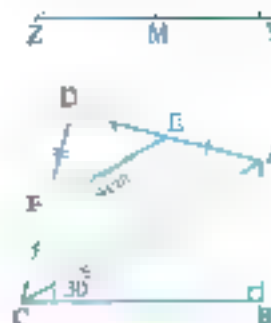
10 El-Gharbia Governorate

Answer the following questions :

1 Choose the correct answer

1 In △ ABC , if m (∠ C) = 65° , m (∠ A) = 75° , then

(a) AB > BC   (b) AB < AC   (c) BC > AB   (d) AB = AC

2 The sum of measures of two angles in the equilateral triangle equals

(a) 180°   (b) 60°   (c) 360°   (d) 120°

3 The numbers 5 , 4 , ... can be lengths of sides of a triangle.

(a) 8   (b) 9   (c) 10   (d) 12

4 If M is the point of intersection of the medians of △ ABC and D is the midpoint of $\overline{BC}$, then AD =

(a) 2 AM   (b) 3 MD   (c) $\frac{2}{3}$ MD   (d) AM

5 If △ ABC is right-angled at B , then

(a) AC < AB   (b) AC > BC   (c) AB = AC   (d) BC > AC

1 In the opposite figure :

y = ...

(a) 30°

(b) 40°

(c) 60°

(d) 70°

2 Complete the following :

1. In △ XYZ , if X̂ = Ẑ , XL .. YZ , then X̅ bisects each .... and ....

2. The number of axes of symmetry of the isosceles triangle is ....

3. ABC is a right-angled triangle at B , AB = BC , then m ∠ C ....

4. The longest side of the right-angled triangle is ....

5. In the opposite figure :

   ABCD is a parallelogram

   , then X = ... °

3 [a] In the opposite figure

   ABC is a right-angled triangle at B

   , m (∠ ACB) = 30° , AB = 5 cm

   and E is the midpoint of AC

   If DE = 5 cm , prove that : m (∠ ADC) = 90°
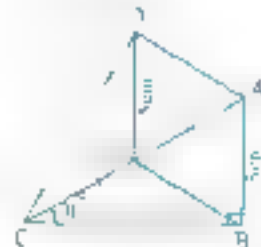
[b] In the opposite figure :

   m (∠ B) = 90° , m (∠ ACB) = 30°

   E is the midpoint of A̅D̅

   , P is the midpoint of CD

   Prove that : AB = EP
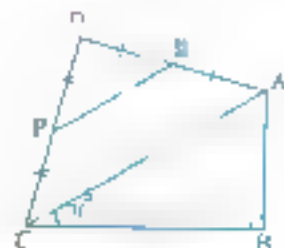
4 a In the opposite figure

   M is the intersection point of the medians

   of △ AHC , XY = 5 cm

   , CX = 12 cm , MY = 3 cm

   Find with proof : The perimeter of △ MAC
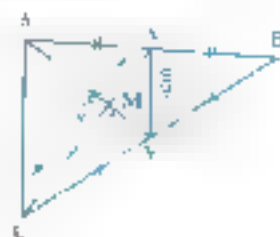
Geometry

[b] In the opposite figure :

XY > XL and YZ > ZL

Prove that :

$m (\angle XLZ) > m (\angle XYZ)$
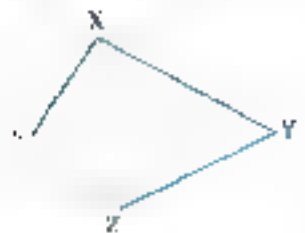
5 [a] In the opposite figure :

ABC is a triangle in which AB = AC

, $\overrightarrow{AE}$ bisects $\angle BAC$

Prove that :

1 $BF = \frac{1}{2} BC$ 2 BD = CD

b] In the opposite figure

$AB = AC$, $m (\angle B) = 2X + 13°$

, $m \angle C) = 3X - 17°$

Find :

The measures of the angles of $\triangle ABC$
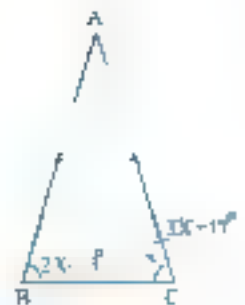
11 ▸ Suez Governorate ◂

Answer the following questions :

1 Choose the correct answer

1 In $\triangle ABC$, if $AB = 3$ cm. , $BC = 5$ cm. , then $AC \in$

(a) $]3 , 5[$ (b) $[3 , 5]$ (c) $]2 , 8[$ (d) $[2 , 8]$

2 If the lengths of two sides of an isosceles triangle are 5 cm. and 10 cm. , then the length of the third side is .... cm.

(a) 10   (b) 5   (c) 15   (d) 4

3 In $\triangle ABC$, if $m \angle A = 100°$, then the longest side of is

(a) $\overline{AB}$ (b) $\overline{AC}$ (c) BC   (d) its median

4 In $\triangle ABC$, if $2 m (\angle A) = m (\angle B) + m (\angle C)$, then $m (\angle A) =$ ....

(a) 45   (b) 90   (c) 60   (d) 20

5 If $A \in$ the axis of symmetry of $\overleftrightarrow{BC}$, then AB .... AC

(a) $\equiv$ (b) =   (c) //   (d) ⊥

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6 The point of intersection of the medians of the triangle divides each of them in the ratio .... from the vertex

  (a) 2 : 1   (b) 3 : 1   (c) 3 : 2   (d) 1 : 2

2 Complete :

1 The base angles of an isosceles triangle are .... in measure.

2 If $\triangle ABC$ has one axis of symmetry and m $\angle A = 20°$, then m $\angle B$ .... °

3 In $\triangle ABC$, if $AB > AC$, then m $(\angle C) >$ ....

4 The bisector of the vertex angle of an isosceles triangle .... and ....

5 In a triangle , two angles are unequal in measure , the greater angle in measure is opposite to ....

3 [a] In the opposite figure :

  m $(\angle B) = 90°$, m $(\angle ADC) = 90°$

  , m $(\angle ACB) = 30°$

  , DE is a median in $\triangle ADC$

  Prove that : AB = DE

[b] In $\triangle ABC$, AB = 7 cm , BC = 5 cm , AC = 6 cm , arrange the measures of the angles of the triangle ABC ascendingly.

4 [a] In the opposite figure :

  AB > BC , AD > CD

  Prove that

  m $(\angle C) >$ m $(\angle A)$

[b] In the opposite figure :

  $\overline{AB} \cap \overline{CD} = \{M\}$

  , m $(\angle C) =$ m $(\angle D) = 90°$

  Prove that : AB > DC
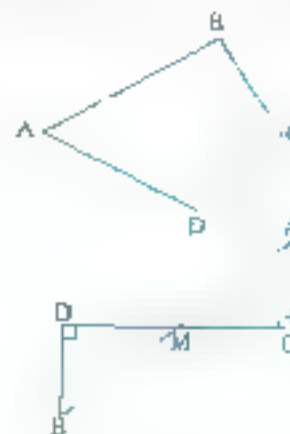
5 [a] In the opposite figure :

  If D , E are the midpoints of AC , $\overline{AB}$

  , MB = 6 cm , MC = 8 cm , BC = 12 cm

  Find : The perimeter of $\triangle MDE$

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b) In the opposite figure

AB BC = AC , DA = DC

, m (∠ D) = 40°

Find : m ∠ BAD)
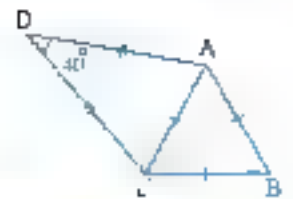
12 **Port Said Governorate** Educational Directorate

Answer the following questions :

1 Choose the correct answer :

1 In △ ABC , if AC = 4 cm , BC = 3 cm , then m ∠ B)   m (∠ A)

(a) >   (b) <   (c) =   (d) ≤

2 The length of the side opposite to the angle of measure 30° n the right-angled triangle equals   the length of the hypotenuse

(a) half   (b) twice   (c) third   (d) quarter

3 In △ ABC , if m (∠ A = 00° and AB = AC , then m ∠ ABC =

(a) 80°   (b) 60°   (c) 40°   (d) 30°

4 The point of intersection of the medians of the triangle divides each of them in the ratio ——————— from the base

(a) 1 3   (b) 3 1   (c) 1 2   (d) 2 1

5 If △ ABD is obtuse-angled at B and C is the midpoint of BD , then the longest side is

(a) AB   (b) $\overline{AC}$ (c) $\overline{AD}$ (d) $\overline{BD}$

6 The triangle whose side lengths are 2 cm , X + 3 cm. and 5 cm , becomes an isosceles triangle when X = ——————— cm

(a) 1   (b) 2   (c) 3   (d) 4

2 Complete :

1 The median of an isosceles triangle from the vertex angle bisects   and is perpendicular to

2 The measure of the exterior angle at any vertex of the equilateral triangle is

3 The base angles of the isosceles triangle are ——

4 ABC is a triangle in which AB = 4 cm , BC = 6 m , then AC ∈]

5 The longest side in the right-angled triangle is

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3. In △ABC , if m(∠A) = 6 X° , m(∠B) = 4 X – 9° and m(∠C) = 3 X – 21° , arrange the side lengths of △ABC ascendingly.

(b) In the opposite figure :

m(∠ABC) = 90° , m(∠C) = 30°

, AD = DC and AC = 10 cm.

Find : The perimeter of △ABD

4. (a) In the opposite figure :

[AC ∩ BD = {M}

, AD // BC and MB = MC

, prove that :

△ MAD is isosceles.

(b) In the opposite figure

m(∠BAC) = 70° , m(∠B) = 55°

and m(∠ACD) = 90°

Prove that : AD > AB

5. (a) In the opposite figure .

m(∠D) = 40° , DA = DC

and △ABC is equilateral

Find , m(∠DCB)

(b) In the opposite figure :
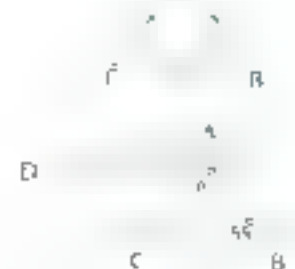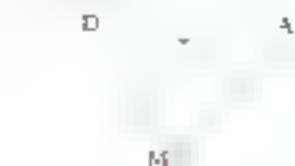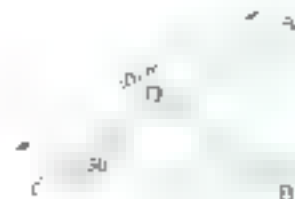
AB < AD and BC < CD

Prove that :

m(∠ABC) > m(∠ADC)

Answer the following questions .

1. Complete each of the following

1. If the measure of one of the base angles of an isosceles triangle equals 50° , then the measure of the vertex angle equals .... °

2. The supplementary of the obtuse angle is .... angle.

Geometry

3 The longest side in the right-angled triangle is

4 The perpendicular straight line on a line segment from its midpoint is called

5 If 4 cm. , 7 cm. are the lengths of two sides in a triangle
, then .... < the length of the third side <

2 Choose the correct answer :

1 The point of intersection of the medians of the triangle divides each of them in the ratio of .... from the base.

  (a) 1 : 2   (b) 2 : 1   (c) 1 : 1   (d) 1 : 3

2 In $\triangle ABC$, if m $\angle B) = 70°$, m ($\angle C) = 50°$, then AB .... AC

  (a) >   (b) <   (c) =   (d) ≥

3 The number of the quadrilaterals in the figure ⊏⊐ is

  a) 3   (b) 4   (c) 5   (d) 6

4 In the right-angled triangle , the length of the median from the vertex of the right angle equals .... the length of the hypotenuse

  (a) $\frac{1}{2}$ (b) double   (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

5 The sum of the measures of the accumulative angles at a point equals .... °

  (a) 90   (b) 180   (c) 360   (d) 308

6 The number of lines of symmetry of $\triangle ABC$ in which AB = AC , m $\angle B = 60°$ is

  (a) 3   (b) 2   (c) 1   (d) zero

3 (a) In the opposite figure :

  HD = 6 cm , HC = 12 cm

  , H is the midpoint of $\overline{AB}$

  and D is the midpoint of $\overline{BC}$

  , DO = 3 cm.

  Calculate : The perimeter of the triangle AOC
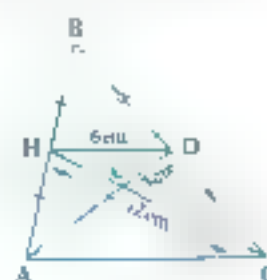
(b) In the opposite figure

  AB = AC , m $\angle A) = 50°$

  $\triangle CDB$ is equilateral

  Find with proof : m ($\angle ABD)$

4 **[a]** In the opposite figure :

$AB = AC$, $BD < CD$

Prove that :

$m (\angle ABD) > m (\angle ACD)$

[b] In the opposite figure :

$\triangle ABC$ is right-angled at B

, AH , BD are two medians

, $m (\angle C) = 30°$, $AC = 24$ cm

Find : The length of each of $\overline{AB}$, BD , $\overline{BM}$
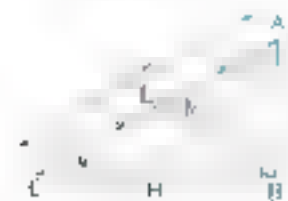
5 **a** In the opposite figure :

$\overline{BD}$ bisects $\angle ABC$

, $\overline{HD} \parallel \overline{BC}$

Prove that :

$\triangle HBD$ is an isosceles triangle

b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m \angle BAC = 70°$

, $m \angle DAC = 30°$

Prove that $AC > BC$

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Answer the following questions

1 Choose the correct answer from those given

1. In $\triangle ABC$, if $AB^2 = BC^2 + AC^2$, $m \angle C = 42°$, then $m \angle B =$
   (a) 40°   b) 90°   (c) 48°   (d) 110°

2. The scalene triangle has ———— axes of symmetry.
   (a) 3   (b) 2   (c) 1   (d) 0

3. If A lies on the axis of symmetry of BC , then AB ———— AC
   (a) <   (b) >   (c) =   (d) ≤

4 If $\overrightarrow{AD}$ is a median of $\triangle ABC$, M is the point of concurrence of the medians , then MD = ———— AD

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$

5 If 10 cm , 5 cm and X cm are side lengths of an isosceles triangle , then X = ———— cm.

a) 5   (b) 10   (c) 15   (d) 4

6 The measure of the exterior angle of the equilateral triangle equals

(a. 60°   (b) 90°   (c) 50°   (d, 120°

2 Complete the following.

1 The total area of a cuboid = 120 cm² and its lateral area = 96 cm² , then the area of its base equals ———— cm².

2 The base angles of the isosceles triangle are

3 ABC is a right-angled triangle at B , m $(\angle C) = 30°$, AB = 5 cm , then AC = ———— cm.

4 In $\triangle ABC$, if m $\angle C) = 30°$, m $\angle A) = 70°$, then the smallest side in length is

5 In any triangle , if the lengths of two sides are not equal , then the greater side in length is opposite to

3 a In the opposite figure :

M is the concurrence point of the medians of $\triangle ABC$, $\overline{AM} \perp CD$, AD = 5 cm , MC = 6 cm.

Find with proof : The length of $\overline{ME}$
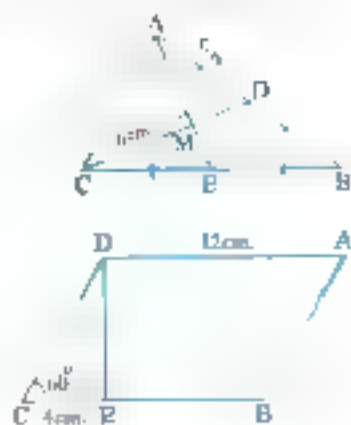
(b) In the opposite figure :

ABCD is a parallelogram , m $(\angle C) = 60°$, $\overline{DE} \perp BC$, AD = 12 cm , CE = 4 cm.

Find with proof : The perimeter of the parallelogram ABCD

4 (a) In the opposite figure :

ABC is an equilateral triangle , $D \in \overrightarrow{BC}$, BC = CD

Prove that : $\overline{AB} \perp \overline{AD}$
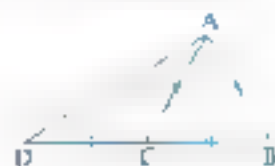
b] In the opposite figure :

ABC is a right-angled triangle at B

, m (∠ ACB) = 60° , E is the midpoint of AC

, DE = BC

Prove that : m (∠ ADC) = 90°

5 **[a]** In the opposite figure

$C \in \overrightarrow{BD}$, AC > AB

Prove that : m (∠ B) > m (∠ D)
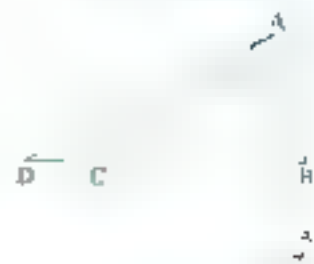
[b] In the opposite figure :

ABC is an obtuse-angled triangle at B

, DE BC

Prove that : AE > AD
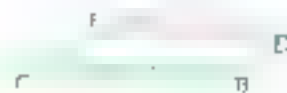
10 Chapter Coverage

Answer the following questions :

1 Complete the following

1 In the right-angled triangle , the .... is the longest side

2 In Δ ABC , D is the midpoint of $\overline{BC}$ and AD = $\frac{1}{2}$ BC , then m (∠ A) = ...°

3 in Δ ABC , m ∠ B = 65° and m ∠ C = 50° , then the shortest side in Δ ABC is ....

4 in AB , if the point X is the midpoint of BC , then AX is called ....

5 The measure of the exterior angle of the equilateral triangle is ....°

2 Choose the correct answer :

1 In Δ ABC , if m (∠ B) > m (∠ C) , then ....

(a) AB < AC   (b) AB = AC   (c) AB > AC   (d) AB = $\overline{AC}$

2 The point of concurrence of the medians of the triangle divides each median in the ratio of .... from the base.

(a) 1 : 2   (b) 1 : 3   (c) 2 : 1   (d) 3 : 1

3 The lengths of two sides in a triangle are 4 cm , 9 cm and it has one axis of symmetry , then the length of the third side is ――――― cm.

(a) 4   (b) 5   (c) 9   (d) 13

4 The number of axes of symmetry of the equilateral triangle equals ―――――

(a) 0   (b) 1   (c) 2   (d) 3

5 If $\triangle$ ABC is right-angled at B , AB = 6 cm. , BC = 8 cm , then the length of the median drawn from B is ――――― cm

(a) 10   (b) 8   (c) 6   (d) 5

6 The lengths which can be lengths of sides of a triangle are ―――――

(a) 0 , 3 , 5   (b) 3 , 3 , 5   (c) 3 , 3 , 6   (d) 3 , 3 , 7

3 **[a] In the opposite figure :**

AB = AC = AD = CD

, m ($\angle$ BAC) = 40°

Find : m ($\angle$ BCD)

[b] In the opposite figure :

m ($\angle$ B) = 90° , m ($\angle$ ACB) = 30°

, E is the midpoint of AD

, F is the midpoint of $\overline{CD}$
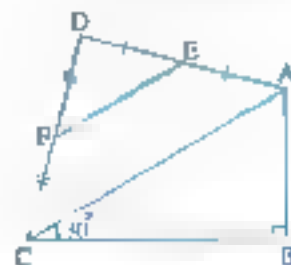
Prove that : AB = EF

4 **[a] In the opposite figure**

ABCD is a quadrilateral in which :

AB = 6 cm. , BC = 4 cm

, CD = 7 cm. , DA = 8 cm.

Prove that : m ($\angle$ BCD) > m ($\angle$ BAD)
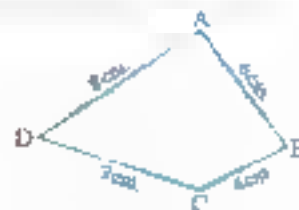
[b] In the opposite figure

ABC is a triangle in which

AB = AC , $B\hat{D}$ bisects $\angle$ ABC

, $\overline{CD}$ bisects $\angle$ ACB

Prove that : $\triangle$ DBC is an isosceles triangle

5 **[a]** In the opposite figure :

$\overline{AD} \parallel BC$, $m (\angle BAC) = 78°$
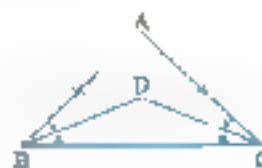
, $m (\angle CAD) = 32°$

Prove that : $AC > AB$
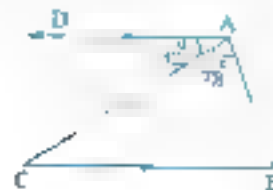
b, In the opposite figure -

ABC is a triangle , X is the midpoint of $\overline{AB}$

, Y is the midpoint of BC

, $XC \cap \overline{AY} = \{M\}$, $XY = 5$ cm.

, $CM = 8$ cm. , $YM = 3$ cm.

Find : The perimeter of $\triangle$ MAC
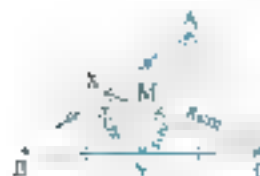
Final Examinations

on Geometry

Model Examinations of the School Book ❓ on Geometry
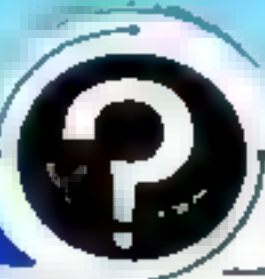
Model 1

Answer the following questions :

1 Complete the following :

1 The longest side in the right-angled triangle is ....

2 If the lengths of two sides in a triangle are 2 cm. and 7 cm. , then :
.... < the length of the third side < ....

3 If the measures of two angles in a triangle are different , then the greater in measure of them is opposite to ....

4 If the length of the median drawn from a vertex of a triangle equals half the opposite side to this vertex in length , then ....

5 If the measure of an angle in the isosceles triangle equals 60° , then the triangle is ....

2 Choose the correct answer from those given :

1 In the opposite figure :
$\triangle$ ABC is equilateral , then m ($\angle$ ACD) = ...
(a) 45°   (b) 60°
(c) 120°   (d) 135°

2 In $\triangle$ ABC which is right-angled at B , if AC = 20 cm. , then the length of the median of the triangle drawn from B equals ....
(a) 10 cm.   (b) 8 cm.   (c) 6 cm.   (d) 5 cm.

3 XYZ is a triangle in which : m ($\angle$ Z) = 70° and m ($\angle$ Y) = 60° , then YZ ..... XY
(a) >   (b) <   (c) =   (d) twice

4 The lengths which can be lengths of sides of a triangle are ....
(a) 0 , 3 , 5   (b) 3 , 3 , 5   (c) 3 , 3 , 6   (d) 3 , 3 , 7

5 The triangle in which the measures of two angles of it are 42° and 69° is ....
(a) an isosceles triangle.   (b) an equilateral triangle.
(c) a scalene triangle.   (d) a right-angled triangle.

6 In the opposite figure :
m ($\angle$ C) = 2 m ($\angle$ A)
, BC = 6 cm.
, then AC = ... cm.
(a) 3   (b) 6
(c) 9   (d) 12

(69

Geometry

3 [a] **Complete :** ABC is a triangle in which AB > AC , then m (∠ C) .... m (∠ B)

[b] **In the opposite figure :**

m (∠ A) = 50° , AB = AC

and △ DBC is equilateral

Find : m (∠ ABD)
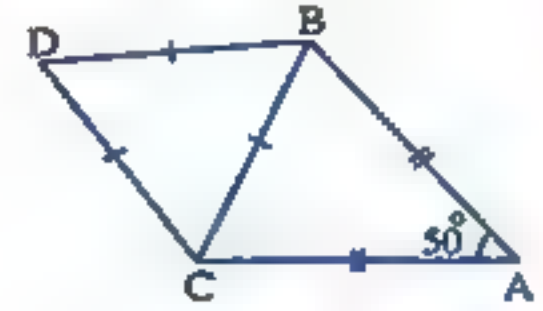
[c] **In the opposite figure :**

$\overline{AD}$ // $\overline{BC}$

, m (∠ BAC) = 70°

and m (∠ DAC) = 50°

Prove that : BC > AC
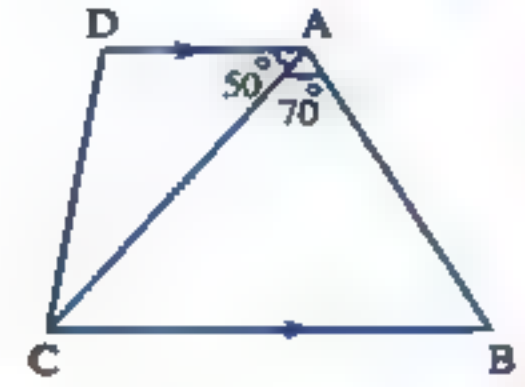
4 [a] **Prove that :** The two base angles of the isosceles triangle are congruent.

[b] **In the opposite figure :**

AB = AC , $\overrightarrow{BD}$ bisects ∠ B

and $\overrightarrow{CD}$ bisects ∠ C

Prove that : △ DBC is isosceles.
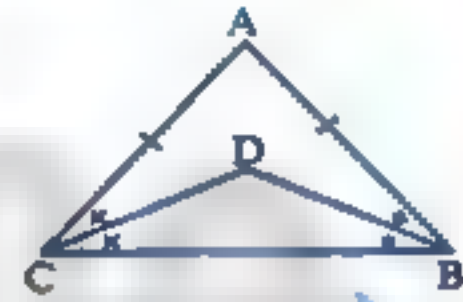
5 [a] **In the opposite figure :**

Arrange the angles

of △ ABC descendingly

due to their measures

[b] **In the opposite figure :**

AB > BC , $\overline{XY}$ // $\overline{BC}$

Prove that : AX > XY
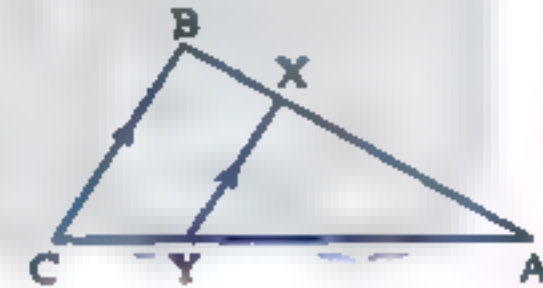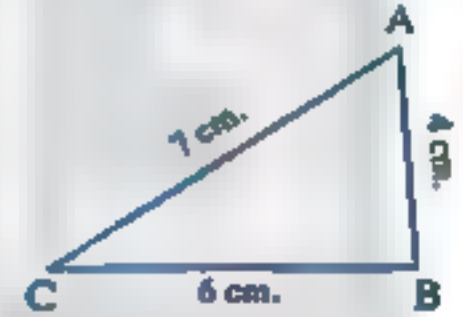
Model 2

Answer the following questions :

1 Choose the correct answer from those given :

①1 The triangle which has three axes of symmetry is .... triangle.

(a) scalene   (b) isosceles   (c) right-angled   (d) equilateral

②2 The sum of lengths of two sides in a triangle is .... the length of the third side.

(a) greater than   (b) smaller than   (c) equals to   (d) twice

③3 If the lengths of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is .... cm.

(a) 4   (b) 8   (c) 3   (d) 12

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4. In △ ABC if m (∠ B) = 130° , then the longest side of it is ··········

(a) $\overline{BC}$ (b) $\overline{AC}$ (c) $\overline{AB}$ (d) its median.

5. △ XYZ is an isosceles triangle in which : m (∠ X) = 100° , then m (∠ Y) = ··········

(a) 100°   (b) 80°   (c) 60°   (d) 40°

6. In the opposite figure :

$x + y =$ ··········

(a) 100°

(c) 180°

(b) 140°

(d) 280°

2 Complete the following :

1. If the measure of an angle in a right-angled triangle is 45° , then the triangle is · ········

2. The length of any side in a triangle ·········· the sum of lengths of the two other sides.

3. If $\overline{AB} = \overline{XY}$, then AB = ··········

4. In △ ABC , if m (∠ A) = 30° and m (∠ B) = 90° , then BC = ·········· AC

5. The axis of symmetry of a line segment is the straight line which ·········· at its midpoint.

3 [a] In △ ABC : AB = 7 cm. , BC = 5 cm. and AC = 6 cm.

Arrange its angles ascendingly due to their measures.

[b] In the opposite figure :

△ ABC is right-angled at B

, m (∠ C) = 30° , D is the midpoint of $\overline{AC}$

, E is the midpoint of $\overline{BC}$, AC = 9 cm.

Find the length of each of : $\overline{BD}$, $\overline{BM}$ and $\overline{AB}$
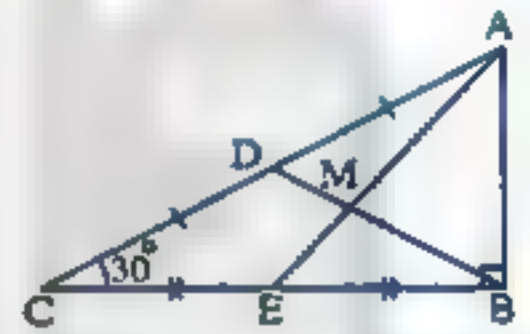
4 [a] In the opposite figure :

m (∠ ABC) = m (∠ BDE) = 90°

, m (∠ E) = 30°

, D is the midpoint of $\overline{AC}$
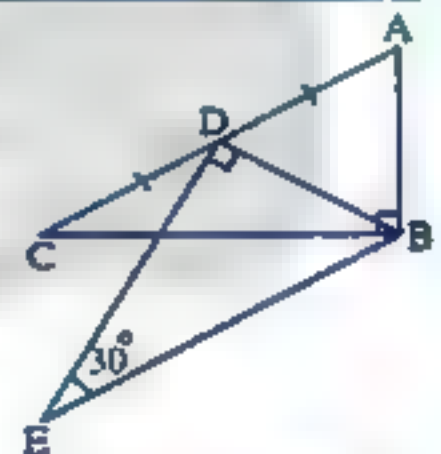
Prove that : AC = BE

[b] In the opposite figure :

$\overleftrightarrow{AD}$ // $\overleftrightarrow{BC}$, m (∠ BAC) = 70°

, m (∠ DAC) = 30°
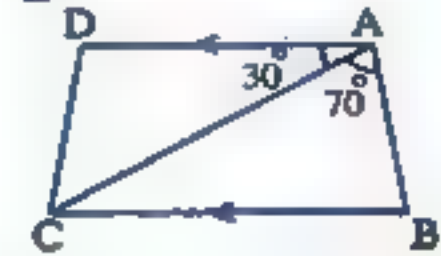
Prove that : AC > BC

5 [a] Complete :

If the measures of two angles of a triangle are different , then their greater in measure is opposite to ··········

[b] In the opposite figure :

$\overleftrightarrow{AB}$ // $\overleftrightarrow{XY}$ and $\overleftrightarrow{AB}$ bisects ∠ YAZ

Prove that : XZ > YZ

(71)
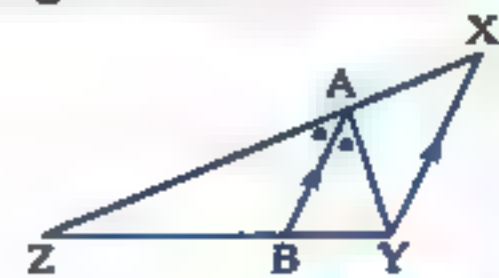
Geometry

Model for the merge students

Answer the following questions :

1 Complete each of the following :

[1] The point of concurrence of the medians of the triangle divides each median in the ratio .... : .... from the base.

[2] In the right-angled triangle , the length of the median drawn from the vertex of the right angle equals ....

[3] The base angles of the isosceles triangle are ....

[4] In $\triangle ABC$: $m(\angle B) = 70°$, $m(\angle C) = 50°$, then AC .... AB

[5] The median of the isosceles triangle from the vertex angle .... , ...

2 Choose the correct answer from those given :

[1] If ABC is an equilateral triangle , then $m(\angle B) = $ ....

   (a) 30°   (b) 60°   (c) 70°   (d) 90°

[2] The length of the side opposite to the angle of measure 30° in the right-angled triangle equals .... the length of the hypotenuse.

   (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) 2

[3] If the measure of the vertex angle of an isosceles triangle is 80° , then the measure of one of the base angles equals ....

   (a) 60°   (b) 40°   (c) 30°   (d) 50°

[4] The number of axes of symmetry of the isosceles triangle is ....

   (a) 1   (b) 2   (c) 3   (d) zero

[5] In $\triangle ABC$: $m(\angle A) = 50°$, $m(\angle B) = 60°$, then the longest side is ....

   (a) $\overline{AB}$ (b) $\overline{BC}$ (c) $\overline{AC}$

3 In the opposite figure , complete :

$\triangle ABC$ is a right-angled triangle at B , $m(\angle C) = 30°$, AB = 5 cm.

Find : The length of $\overline{AC}$

$\because m(\angle B) = $ .... , $m(\angle C) = $ ....

$\therefore AB = \frac{1}{2} \times$ .... $\therefore AC = $ .... cm.

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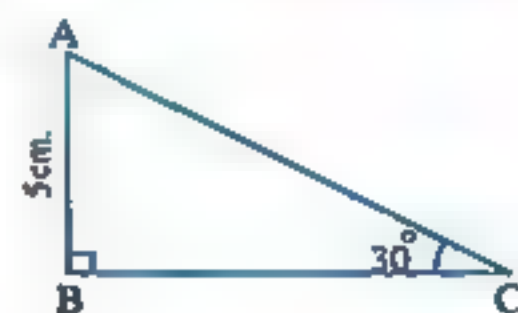
4 [a] In $\triangle ABC$: $m(\angle A) = 40°$, $m(\angle B) = 75°$, $m(\angle C) = 65°$

Arrange the lengths of the sides of the triangle descendingly.

The order is : .... , ... , ...

[b] In the opposite figure :

$\overrightarrow{AD} \parallel \overrightarrow{BC}$

Complete :

1 $m(\angle B) = $ ....°

2 The side .... is the longest side of $\triangle ABC$
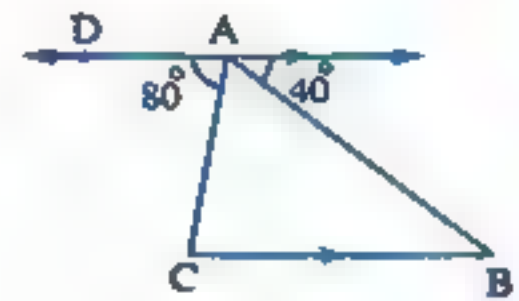
5 In the opposite figure :

$AB = AC = CD = AD = 10$ cm.

, $m(\angle BAC) = 70°$

Put ($\checkmark$) or ($\times$) :

1 $m(\angle B) = 55°$ ( )

2 $m(\angle D) = 70°$ ( )

3 $m(\angle DCB) = 120°$ ( )

4 $AB + AD = 20$ cm. ( )

5 $AB + BC = BC + CD$ ( )
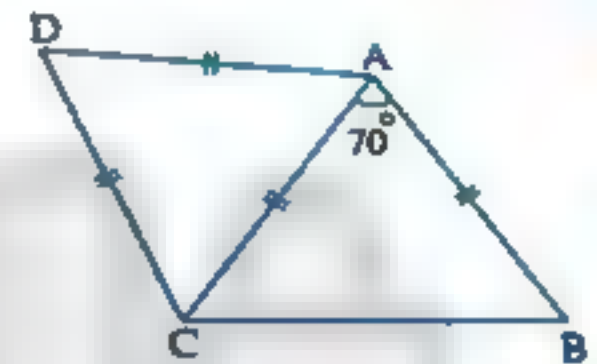
Some Schools Examinations ? on Geometry

1 Cairo Governorate
Centre Cairo Educative Zone
Saint Joseph College Khoronfish

Answer the following questions :

1 Choose the correct answer from the given ones :

1 In △ABC , if AB = 6 cm. and AC = 7 cm. , then BC ∈ ············

(a)]6 , 13]   (b) [6 , 7]   (c)]1 , 13[(d) [1 , 7[

2 The point of intersection of the medians of the triangle divides each of them in the ratio of ············· from the vertex.

(a) 1 : 2   (b) 1 : 3   (c) 2 : 1   (d) 2 : 3

3 The measure of any exterior angle of the equilateral triangle equals ··········· °

(a) 60   (b) 100   (c) 120   (d) 150

4 In △ABC , if $\overline{AD}$ is a median , M is the point of intersection of its medians , then AM = ············· AD

(a) $\frac{1}{2}$ (b) 2   (c) $\frac{2}{3}$ (d) $\frac{3}{2}$

5 △ XYZ is an isosceles triangle in which m (∠ X) = 110° , then m (∠ Y) = ············ °

(a) 110   (b) 35   (c) 60   (d) 45

8 In △ ABC , if $\overline{AB} \perp \overline{BC}$ and AB = BC , then m (∠ A) = ············ °

(a) 30   (b) 45   (c) 60   (d) 90

2 Complete the following :

1 The number of axes of symmetry of the equilateral triangle equals ··············

2 The base angles in an isosceles triangle are ··············

3 The longest side in the right-angled triangle is ··············

4 The bisector of the vertex angle of the isosceles triangle ··············

5 In the opposite figure :

AC = 12 cm. , then BD = ············· cm.

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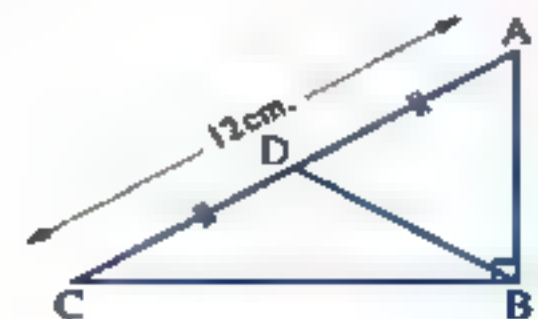
3 [a] In $\triangle ABC$, if $m(\angle A) = (6X)°$, $m(\angle B) = (4X-9)°$

and $m(\angle C) = 3(X-2)°$

Arrange the side lengths of $\triangle ABC$ ascendingly.

[b] In the opposite figure :

$m(\angle ABC) = 90°$, $m(\angle C) = 30°$

, $AD = DC$ and $AC = 10$ cm.

Find : The perimeter of $\triangle ABD$

4 [a] In the opposite figure :

If $\overline{AC} \cap \overline{BD} = \{M\}$

, $\overline{AD} // \overline{BC}$ and $MB = MC$

, prove that :

$\triangle MAD$ is isosceles.

[b] In the opposite figure :

$m(\angle BAC) = 70°$, $m(\angle B) = 55°$

and $m(\angle ACD) = 90°$

Prove that : $AD > AB$

5 [a] In the opposite figure :

$m(\angle D) = 40°$

, $DA = DC$

and $\triangle ABC$ is an equilateral triangle.

Find : $m(\angle DCB)$

[b] In the opposite figure :

$AB < AD$ and $BC < CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$

(75)
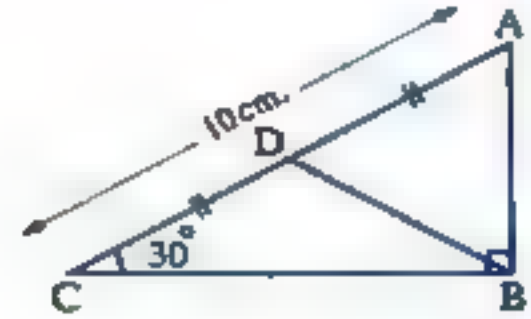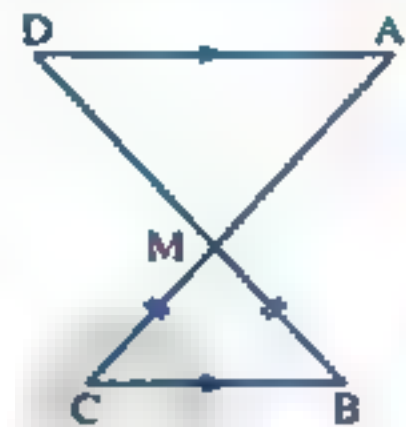
Geometry

2   Cairo Governorate   Hadaik El-Kobba Educational Zone

Answer the following questions :

1 **Complete :**

1. The median of an isosceles triangle from the vertex angle bisects ·············· and is perpendicular to ··············

2. The measure of the exterior angle at any vertex of the equilateral triangle is ··············°

3. The base angles of the isosceles triangle are ··············

4. ABC is a triangle in which AB = 4 cm. , BC = 6 cm. , then AC ∈] ·············· , ·············· [

5. The longest side in the right-angled triangle is ··············

2 **Choose the correct answer :**

1. In △ ABC , if AC = 4 cm. , BC = 3 cm. , then m (∠ B) ·············· m (∠ A)

   (a) >   (b) <   (c) =   (d) ≤

2. The length of the side opposite to the angle of measure 30° in the right-angled triangle equals ·············· the length of the hypotenuse.

   (a) half   (b) twice   (c) third   (d) quarter

3. In △ ABC , if m (∠ A) = 100° and AB = AC , then m (∠ ABC) = ···········

   (a) 80°   (b) 60°   (c) 40°   (d) 30°

4. The point of intersection of the medians of the triangle divides each of them in the ratio ·············· from the base.

   (a) 1 : 3   (b) 3 : 1   (c) 1 : 2   (d) 2 : 1

5. If △ ABD is obtuse-angled at B and C is the midpoint of $\overline{BD}$, then the longest side is ··············

   (a) $\overline{AB}$ (b) $\overline{AC}$ (c) $\overline{AD}$ (d) $\overline{BD}$

6. The triangle whose side lengths are 2 cm. , (X + 3) cm. and 5 cm. becomes an isosceles triangle when X = ·············· cm.

   (a) 1   (b) 2   (c) 3   (d) 4

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3 [a] In the opposite figure :

ABC is a triangle , AB = AC , XC = YB

, m (∠ B) = 50° , m (∠ CAX) = 30°

1 **Prove that :** △ AXY is an isosceles triangle.

2 **Find :** m (∠ AYB)
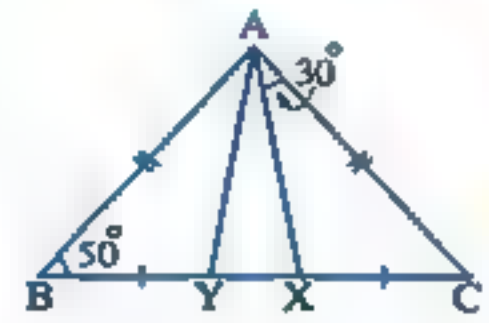
[b] In the opposite figure :

$\overrightarrow{BD} \cap \overrightarrow{AC} = \{M\}$

, AB = AD and BC = DC

Prove that : M is the midpoint of $\overline{BD}$
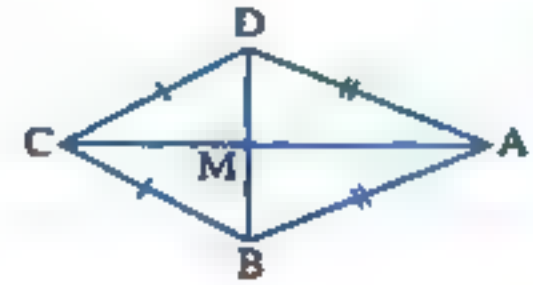
4 [a] In the opposite figure :

ABC is a triangle in which AB > AC , $\overrightarrow{BD}$ bisects ∠ ABC

, $\overrightarrow{CD}$ bisects ∠ ACB

Prove that : BD > CD
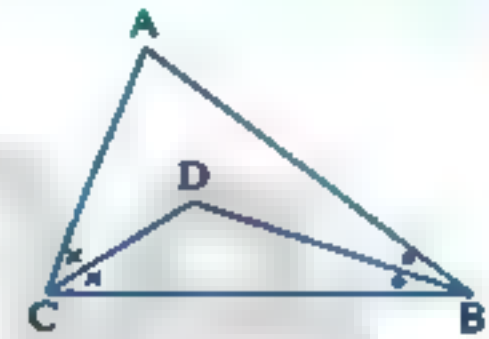
[b] In the opposite figure :

AD = DC = AC = BD

, m (∠ B) = 65°

Find with proof : m (∠ BDA)
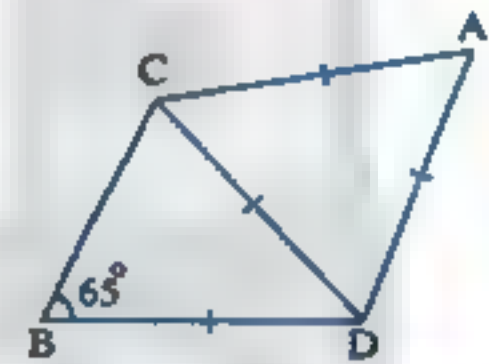
5 [a] In the opposite figure :

△ ABC is right-angled at B

, E and D are the midpoints of $\overline{AC}$ and $\overline{BC}$ respectively

, AC = 12 cm.

Find the length of each of : $\overline{BE}$ and $\overline{ME}$
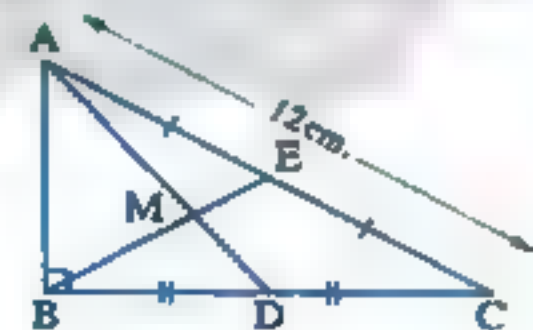
[b] In the opposite figure :

ABC is a triangle , D ∈ $\overline{BC}$ and E ∈ $\overline{AC}$

such that BD = CD = CE = DE

Prove that : 1 BC > BE

2 AB + BD > AE

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هذا العمل خاص بموقع ذاكرولي التعليمى ولا يسمح بتداوله على مواقع أخرى
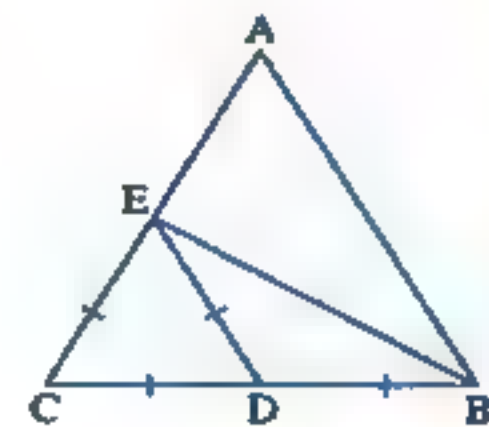
Geometry

3 Cairo Governorate

Rod El-Farag Educational Zone
S.T. Mary's School

Answer the following questions :

1 Choose the correct answer from the given ones :

1 In the triangle XYZ , if m ($\angle$ Z) = 70° and m ($\angle$ Y) = 60° , then YZ ·············· XY

   (a) >   (b) =   (c) <   (d) twice

2 The measure of the exterior angle of the equilateral triangle equals ··············

   (a) 45°   (b) 60°   (c) 90°   (d) 120°

3 The intersection point of the medians of a triangle divides each of them from the direction of the base in the ratio ·············

   (a) 1 : 2   (b) 2 : 1   (c) 1 : 3   (d) 2 : 3

4 ABCD is a rectangle , M is the point of intersection of its diagonals , if the length of the diagonal is 6 cm. , then the length of the median $\overline{AM}$ equals ·············· cm.

   (a) 3   (b) 6   (c) 9   (d) 12

5 ABC is an isosceles triangle where AB = AC and m ($\angle$ A) = 100° , then m ($\angle$ B) = ·············

   (a) 60°   (b) 50°   (c) 40°   (d) 30°

6 The number of axes of symmetry of the isosceles triangle equals ··············

   (a) 0   (b) 1   (c) 2   (d) 3

2 Complete :

1 If the measures of two angles of a triangle are different , then the greater in measure is opposite to ··············

2 The bisector of the vertex angle of the isosceles triangle ················· , ··············

3 The base angles of the isosceles triangle are ··············

4 In any triangle , the sum of the lengths of any two sides ·············· the length of the third side.

5 $\triangle$ ABC is right-angled at B , m ($\angle$ A) = 30° , AC = 10 cm. , then CB = ·············· cm.

3 [a] ABC is a triangle in which AB = AC , $\overrightarrow{BD}$ bisects $\angle$ ABC , $\overrightarrow{CD}$ bisects $\angle$ ACB , $\overrightarrow{BD} \cap \overrightarrow{CD} = \{D\}$ Prove that : $\triangle$ DBC is an isosceles triangle.

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[b] In the opposite figure :

ABC is a right-angled triangle at B

, m (∠ ACB) = 30° , AB = 5 cm.

, E is the midpoint of $\overline{AC}$, if DE = 5 cm.
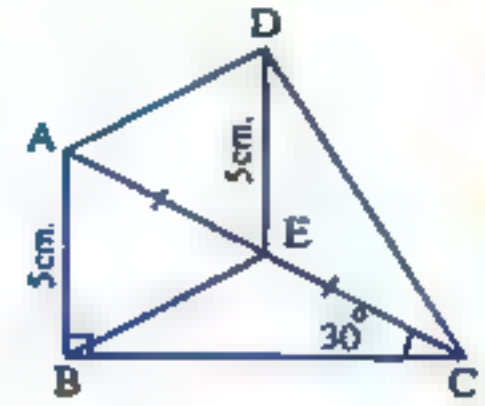
, prove that : m (∠ ADC) = 90°

---

4 **[a] In the opposite figure :**

ABC is a triangle in which AB > AC , D ∈ $\overrightarrow{AB}$, E ∈ $\overrightarrow{AC}$

, $\overrightarrow{BF}$ bisects ∠ DBC , $\overrightarrow{CF}$ bisects ∠ BCE

, $\overrightarrow{BF} \cap \overrightarrow{CF} = \{F\}$

Prove that : 1 m (∠ FBC) > m (∠ BCF)

2 CF > BF
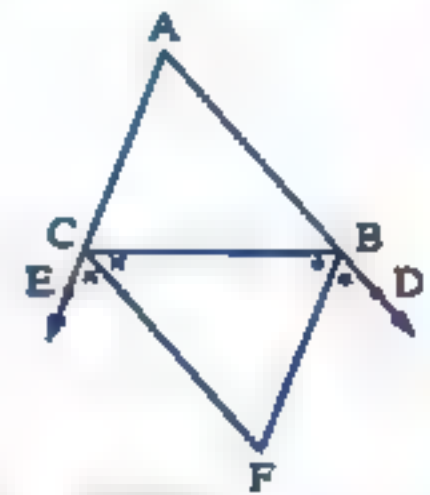
[b] In the opposite figure :

ABC is a triangle in which ME = 2 cm. , MD = 3 cm.

, DE = 4 cm. , D and E are the midpoints of $\overline{BC}$, $\overline{AC}$ respectively

Find : The perimeter of △ MAB

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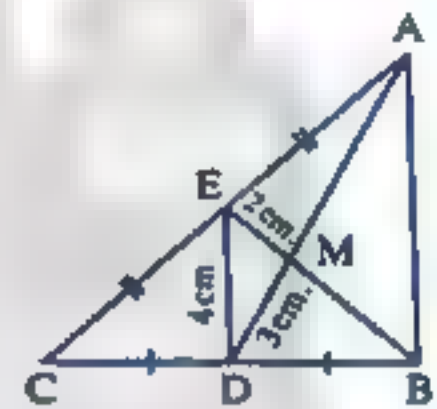
5 **[a] In the opposite figure :**

ABC is a triangle in which

M is a point inside it.

Prove that : MA + MB + MC > $\frac{1}{2}$ the perimeter of △ ABC
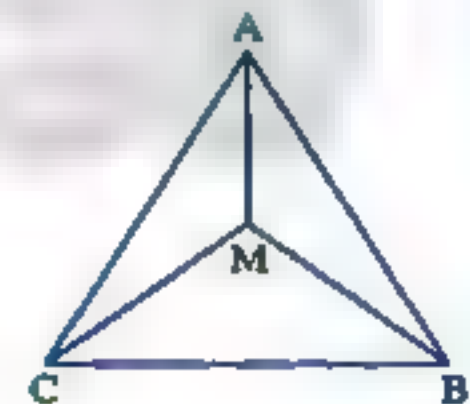
[b] In the opposite figure :

ABCD is a quadrilateral in which $\overline{AD}$ // $\overline{BC}$

, $\overrightarrow{BD}$ bisects ∠ ABC , $\overrightarrow{AE}$ bisects ∠ BAD

Prove that : 1 AB = AD   2 $\overline{AE} \perp \overline{BD}$

3 BE = ED

(79)
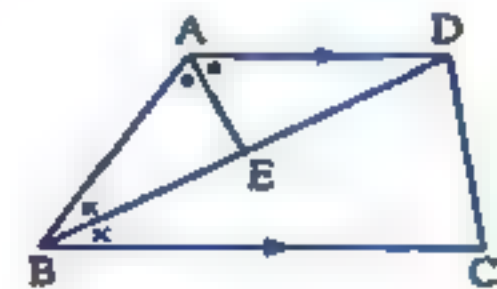
Geometry

4 Giza Governorate — Boulaq El Dakrour Directorate of Education / Dar El-Hanan Lang. Sch. for Girls

Answer the following questions :

1 Choose the correct answer :

[1] The number of axes of symmetry of the isosceles triangle equals ⋯⋯ ⋯⋯

(a) 3   (b) 2   (c) 1   (d) 0

[2] The point of intersection of the medians of the triangle divides each of them in the ratio of ⋯⋯⋯⋯⋯ from the base.

(a) 2 : 1   (b) 3 : 1   (c) 3 : 2   (d) 1 : 2

[3] $\triangle$ XYZ is right-angled at Y , then XZ ⋯⋯ ⋯⋯ YZ

(a) >   (b) <   (c) =   (d) ≤

[4] If 10 cm. , 5 cm. and X cm. are side lengths of an isosceles triangle , then X = ⋯ ⋯⋯⋯

(a) 10   (b) 5   (c) 15   (d) 4

[5] The measure of the exterior angle of an equilateral triangle equals ⋯⋯⋯⋯°

(a) 30   (b) 60   (c) 90   (d) 120

[6] In the opposite figure :

$X + y$ = ⋯⋯⋯⋯⋯

(a) 100°   (b) 140°

(c) 180°   (d) 280°

2 Complete the following :

[1] In $\triangle$ ABC , if m ($\angle$ B) = 70° , m ($\angle$ C) = 50° , then AC ⋯⋯ ⋯⋯ ⋯ AB

[2] In $\triangle$ ABC , if m ($\angle$ A) = m ($\angle$ B) + m ($\angle$ C) , then the longest side is ⋯⋯⋯⋯ ⋯

[3] The axis of symmetry of a line segment is the straight line which ⋯⋯⋯⋯⋯ from its midpoint.

[4] ABC is a triangle in which AB = 4 cm. , CB = 7 cm.

, then AC $\in$] ⋯⋯⋯⋯⋯ , ⋯⋯⋯⋯⋯ [

[5] If $\overline{AD}$ is a median in $\triangle$ ABC , and M is the point of intersection of its medians and AM = 12 cm. , then AD = ⋯⋯⋯⋯⋯

80

3 [a] In the opposite figure :

AB = BD , m (∠ BAD) = 70°

, Δ ADC is an equilateral triangle.

Find : m (∠ BDC)
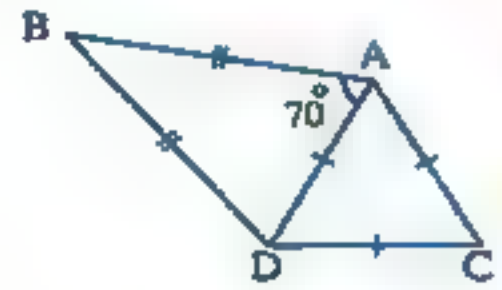
[b] In the opposite figure :

ABC is a triangle , F and E are the midpoints

of $\overline{AB}$ and $\overline{AC}$ respectively.

If BM = 5 cm. , CM = 6 cm. , BC = 12 cm.

, then find : The perimeter of Δ MEF
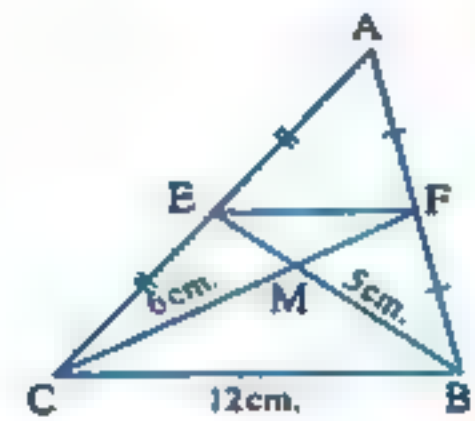
4 [a] In the opposite figure :

m (∠ ABC) = 90°

, E is the midpoint of $\overline{AC}$

and X , Y are the midpoints of $\overline{DA}$ and $\overline{DC}$

Prove that : XY = BE
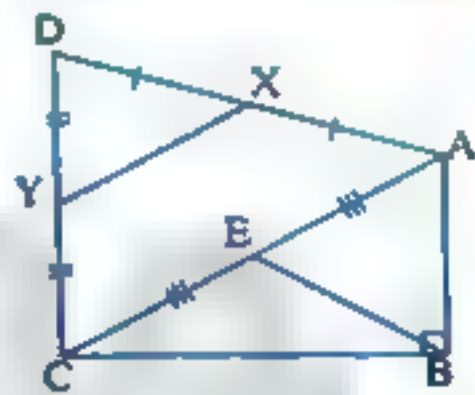
[b] In the opposite figure :

ABCD is a square , E ∈ $\overline{BC}$

where m (∠ BAE) = 30° and $\overline{DF}$ ⊥ $\overline{AE}$

, if AF = 4 cm.

, calculate : The area of the square ABCD
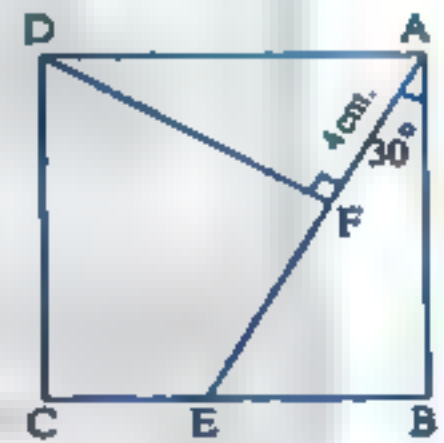
5 [a] In the opposite figure :

m (∠ A) = m (∠ B)

Find : The perimeter of Δ ABC
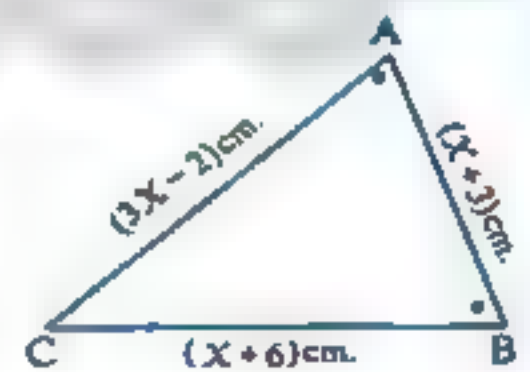
[b] In the opposite figure :

ABC is a triangle in which :

AB > AC , D ∈ $\overrightarrow{AB}$, E ∈ $\overrightarrow{AC}$

, $\overrightarrow{BF}$ bisects ∠ DBC , $\overrightarrow{CF}$ bisects ∠ BCE

, $\overrightarrow{BF}$ ∩ $\overrightarrow{CF}$ = {F}

Prove that : **1** m (∠ FBC) > m (∠ BCF)

2 CF > BF

Geometry

5 Giza Governorate — 6th October Directorate — Om El-Moemneen Lang. School

Answer the following questions :

1 Choose the correct answer :

1 If ABC is an isosceles triangle , m ($\angle$ A) = 60° , AB = 4 cm.
, then its perimeter = ············· cm.

(a) 4   (b) 12   (c) 6   (d) 9

2 XYZ is a triangle in which m ($\angle$ Z) = 70° , m ($\angle$ Y) = 60° , then YZ ············· XY

(a) >   (b) <   (c) =   (d) $\geq$

3 In $\triangle$ ABC , if m ($\angle$ B) = 90° , then the longest side is ·············

(a) $\overline{BC}$ (b) $\overline{AB}$ (c) $\overline{AC}$ (d) its median.

4 A triangle has one axis of symmetry , the lengths of two sides are 4 cm. and 8 cm.
, then the length of the third side is ············· cm.

(a) 3   (b) 6   (c) 4   (d) 8

5 The point of intersection of the medians of the triangle divides each of the medians in the ratio ············· from the base.

(a) 2 : 1   (b) 3 : 2   (c) 2 : 4   (d) 3 : 4

6 If the length of any side of a triangle = $\frac{1}{3}$ the perimeter of the triangle , then the number of axes of symmetry of the triangle equals · ·············

(a) 3   (b) 1   (c) 2   (d) zero

2 Complete :

1 The bisector of the vertex angle of the isosceles triangle ············· and ·············

2 In the opposite figure :
The length of $\overline{AC}$ = ·············
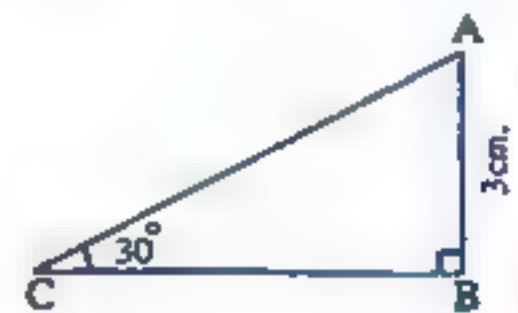
3 In $\triangle$ ABC , m ($\angle$ A) = m ($\angle$ B) = m ($\angle$ C) , then the measure of the exterior angle equals ·············

4 If the lengths of two sides of a triangle are 4 cm. , 7 cm. , then the length of the third side belongs to] ············· , ············· [

5 If $\angle$ X and $\angle$ Y are two supplementary angles , $\angle$ X $\equiv$ $\angle$ Y , then m ($\angle$ X) = ·············°

82

3 **[a]** In the opposite figure :

$AD = BD = ED$, $m (\angle DAB) = 40°$

Prove that :

1 $AD < AB$ **2** $BC > AC$
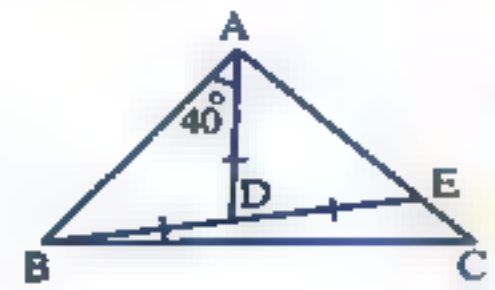
[b] In the opposite figure :

$AB = AC$, $\overrightarrow{BD}$ bisects $\angle ABC$

and $\overrightarrow{CD}$ bisects $\angle ACB$

Prove that : $\triangle DBC$ is an isosceles triangle.
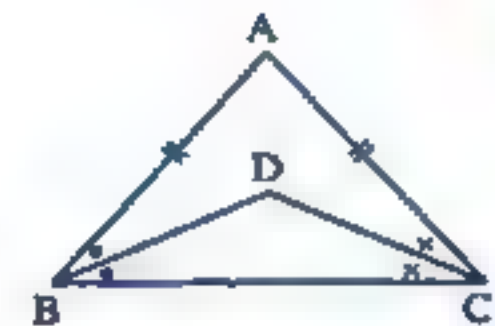
4 **[a]** ABC is a triangle in which $m (\angle A) = (6 X)°$, $m (\angle B) = (4 X - 9)°$

, $m (\angle C) = 3 (X - 2)°$ Arrange the lengths of the sides of the triangle ascendingly.

[b] In the opposite figure :

$AB = AC = CB = CD$

Prove that : $\overline{AB} \perp \overline{AD}$
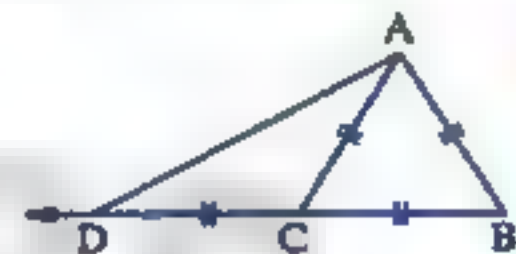
5 **[a]** In the opposite figure :

$m (\angle ABC) = 90°$, X is the midpoint of $\overline{AB}$

, Y is the midpoint of $\overline{BC}$

, D is the midpoint of $\overline{XY}$, $AC = 24$ cm.

Find : The length of $\overline{BD}$
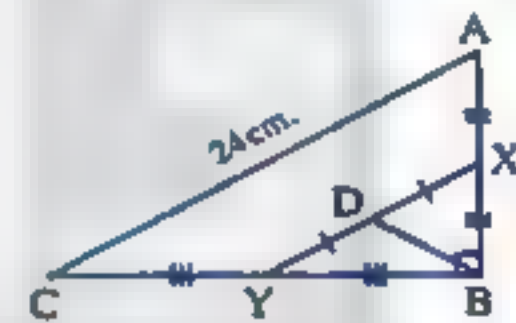
[b] In the opposite figure :

F and N are the midpoints of $\overline{AB}$ and $\overline{AC}$ respectively

, $AB = 8$ cm. , $AC = 12$ cm. , $BM = 6$ cm.

, $CF = 10.5$ cm.

Find : The perimeter of the figure AFMN
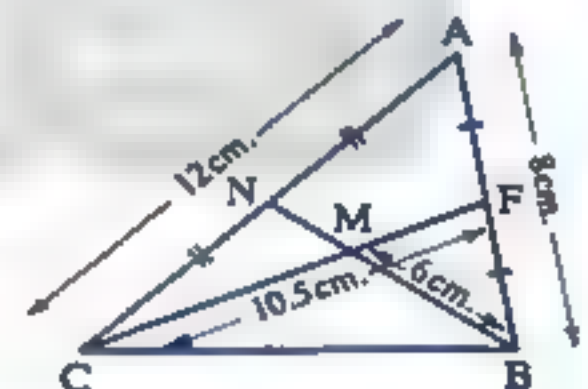
6 **Alexandria Governorate**

Middle Educational Zone
Math Supervision

Answer the following questions :

1 **Complete each of the following :**

1 If $m (\angle A) = 65°$, then m (complementary $\angle A$) = ·············°

2 In $\triangle ABC$, $m (\angle A) = 50°$, $m (\angle C) = 80°$, then CB = ···············

(83)

Geometry

3 In the opposite figure :

$x = $ ....°
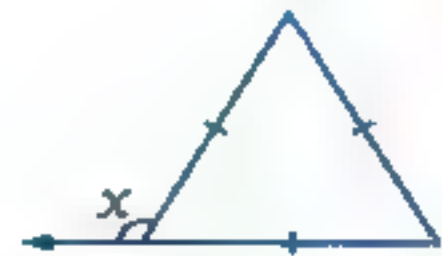
4 The number of axes of symmetry for the rectangle equals ....

5 In $\triangle ABC$, $m(\angle B) = 70°$, $m(\angle C) = 45°$, then BC .... AC

6 The medians of the triangle are ....

2 **Choose the correct answer :**

1 The sum of lengths of two sides in a triangle is .... the length of the third side.

(a) >   (b) <   (c) =   (d) twice

2 The triangle which has no axis of symmetry is ....

(a) scalene.   (b) isosceles.   (c) equilateral.   (d) right-angled.

3 The numbers which can not be side lengths of a triangle are ....

(a) 3 , 3 , 3   (b) 3 , 3 , 4   (c) 3 , 3 , 5   (d) 3 , 3 , 6

4 $\overline{BE}$ is a median in $\triangle ABC$, M is the point of concurrence of the medians If BM = 6 cm. , then ME = ... cm.

(a) 2   (b) 3   (c) 4   (d) 9

5 The angle whose measure is 180° is called .... angle.

(a) an acute   (b) an obtuse   (c) a straight   (d) a reflex

3 [a] $\triangle ABC$ is right-angled at B , if $m(\angle A) = 75°$, arrange the lengths of its sides descendingly.

[b] In the opposite figure :

N is the point of concurrence of

the medians of $\triangle XYZ$

, LZ = 15 cm. , YM = 18 cm. , XY = 20 cm.

Find : The perimeter of $\triangle NLY$
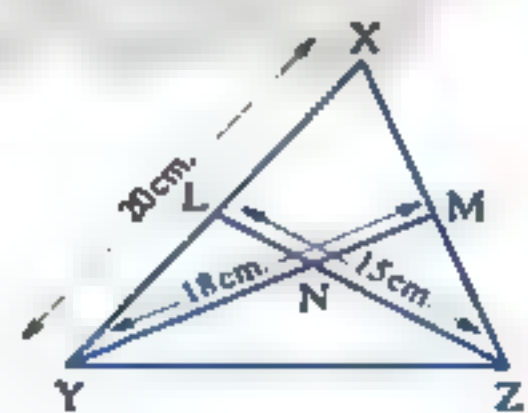
4 [a] In the opposite figure :

$m(\angle ABC) = 90°$, E is the midpoint of $\overline{AC}$

, $m(\angle ACB) = 30°$

, AB = DE = 5 cm.

Prove that : $m(\angle ADC) = 90°$

84

هذا العمل خاص بموقع ذاكرولى التعليمى ولا يسمح بتداوله على مواقع أخرى
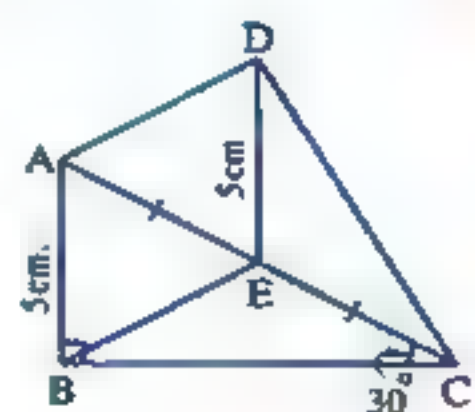
Final Examinations

[b] In the opposite figure :

Prove that : m (∠ BCD) > m (∠ BAD)
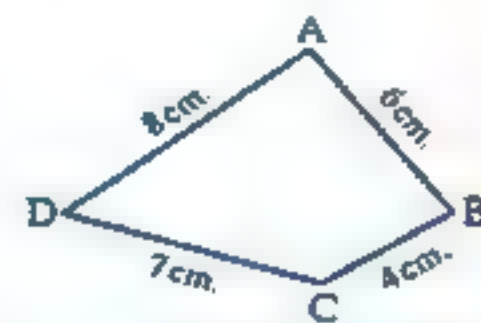
5 **[a] In the opposite figure :**

$\overrightarrow{BD}$ bisects ∠ ABC

, $\overrightarrow{DE}$ // $\overrightarrow{BC}$

Prove that :

△ EBD is an isosceles triangle.

[b] In the opposite figure :

△ ABC is equilateral , DA = DC

, m (∠ ADC) = 96°

Find : m (∠ DAB)
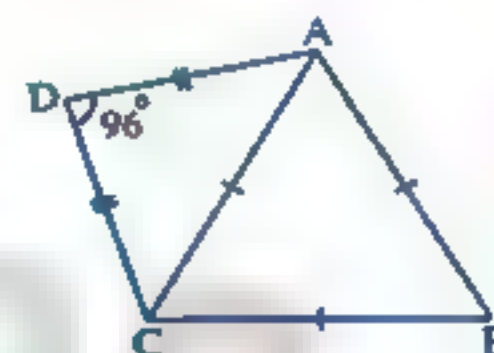
7 **Alexandria Governorate**   Agamy Educational Zone   Inspector of Maths

Answer the following questions :

1 **Choose the correct answer :**

1 XYZ is a triangle in which m (∠ Z) = 70° , m (∠ Y) = 60° , then YZ ·············· XY

(a) >   (b) <   (c) =   (d) twice

2 The two diagonals are perpendicular in the ··············

(a) rectangle.   (b) rhombus.   (c) trapezium.   (d) triangle.

3 The measure of the exterior angle of the equilateral triangle equals ··············°

(a) 360   (b) 120   (c) 60   (d) 180

4 If the lengths of two sides in an isosceles triangle are 3 cm. , 7 cm. , then the length of the third side is ·············· cm.

(a) 3   (b) 7   (c) 10   (d) 4

5 The point of concurrence of the medians of the triangle divides each median in the ratio ·············· from its base.

(a) 2 : 1   (b) 1 : 3   (c) 1 : 4   (d) 1 : 2

6 If the side length of an equilateral triangle is 10 cm. , then its height equals ·············· cm.

(a) 5   (b) 10   (c) 5$\sqrt{3}$ (d) 30

85

Geometry

2 **Complete :**

1 If the isosceles triangle has an angle of measure 45° , then the triangle is ············· - angled triangle.

2 The sum of lengths of any two sides of a triangle is ············· the length of the third side.

3 In the opposite figure :

If m (∠ C) = 2 m (∠ A)

, CB = 4 cm.

, then AC = ············· cm.

4 If the two side lengths in a triangle are 4 cm. , 7 cm. , then the length of the third side ∈]············· , ·············[

5 In the opposite figure :

AD = DC = BD

, m (∠ C) = 50°

, then m (∠ B) = ·············°
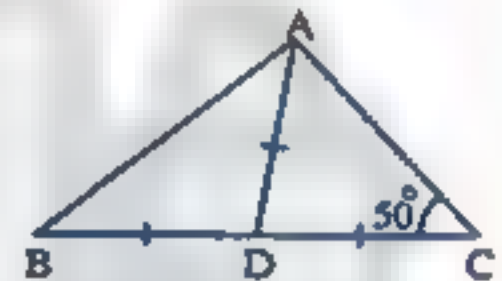
3 **[a]** In the opposite figure :

m (∠ ABC) = 90° , D is the midpoint of $\overline{XY}$

, X , Y are the midpoints of $\overline{AB}$, $\overline{BC}$ respectively , AC = 20 cm.

Find : The length of $\overline{BD}$
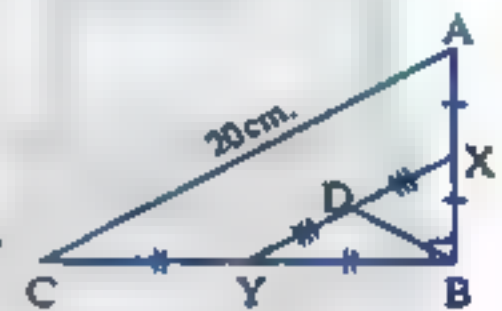
[b] In the opposite figure :

B ∈ $\overline{XY}$, $\overline{XY}$ // $\overline{AC}$

, m (∠ ABX) = 62°

and m (∠ C) = 56°

Prove that : AC = BC
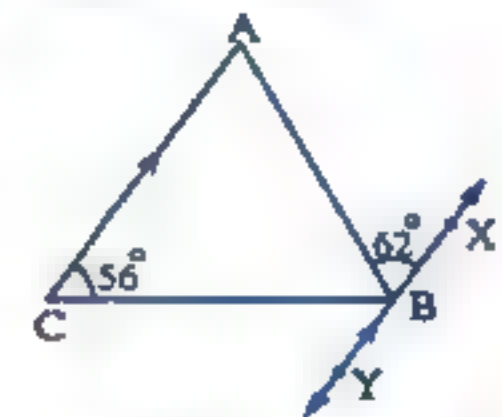
4 **[a]** In the opposite figure :

D , E are the midpoints of $\overline{AB}$ and $\overline{AC}$ respectively

, DC = 9 cm. , MB = 4 cm. and BC = 8 cm.

Find : The perimeter of Δ DME

86

[b] In the opposite figure :

ABCD is a square , $E \in \overline{BC}$

, where m ($\angle$ BAE) = 30° and $\overline{DF} \perp \overline{AE}$

, if AF = 4 cm.

, **calculate** : The area of the square ABCD

5 **[a] In the opposite figure :**

$\overline{AD} \parallel \overline{BC}$, m ($\angle$ CAB) = 70°

, m ($\angle$ DAC) = 50°

Prove that : BC > AC

[b] In the opposite figure :

AB = BD , m ($\angle$ BAD) = 70°

, Δ ADC is equilateral

Find : m ($\angle$ BDC)
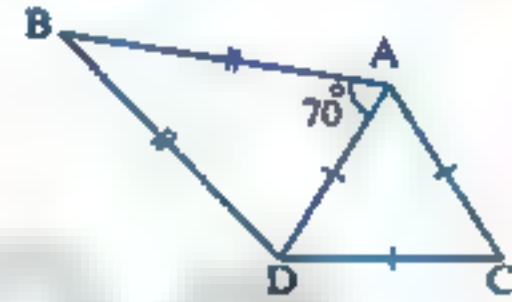
8 **El-Kalyoubia Governorate**   Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 **Choose the correct answer :**

1 ABC is an equilateral triangle , then m ($\angle$ A) = ·········· ..°

(a) 45   (b) 60   (c) 120   (d) 35

2 Δ XYZ is an isosceles triangle , m ($\angle$ X) = 100° , then m ($\angle$ Y) = ··········· .°

(a) 100   (b) 80   (c) 60   (d) 40

3 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals ··············· the length of the hypotenuse.

(a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{4}$ (d) 2

4 The number of axes of symmetry of the isosceles triangle equals ···············

(a) 0   (b) 1   (c) 2   (d) 3

5 If the lengths of two sides of an isosceles triangle are 2 cm. , 5 cm. , then the length of the third side equals ··············· cm.

(a) 2   (b) 3   (c) 4   (d) 5

8 In the triangle ABC , if m ($\angle$ A) = 50° , m ($\angle$ B) = 60° , then the longest side is ···············

(a) $\overline{AB}$ (b) $\overline{BC}$ (c) $\overline{AC}$ (d) 110 cm.

(87)

هذا العمل خاص بموقع ذاكرولى التعليمى ولا يسمح بتداوله على مواقع أخرى

Geometry

2 Complete :

[1] The medians of a triangle are ················

[2] The longest side of the right-angled triangle is the ············ ···

[3] If AB = AC in the triangle ABC , then ABC is ·· ······ ·· · triangle.

[4] XYZ is a triangle , m (∠ Z) = 40° , m (∠ Y) = 30° , then XY ·········· ···· XZ

[5] If the lengths of two sides of a triangle are 6 cm. and 9 cm. , then the length of the third side ∈]·············· , ···············[

3 [a] In △ ABC , m (∠ A) = 40° , m (∠ B) = 75° , m (∠ C) = 65°

Arrange the lengths of the sides of this triangle descendingly.

[b] In the opposite figure :

AB = BC , $\overline{XY}$ // $\overline{AC}$

Prove that : BX = BY
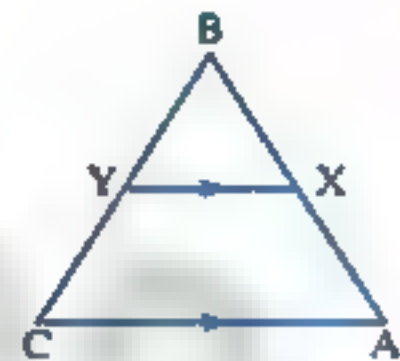
4 [a] In the opposite figure :

XY = XL , ZY = ZL

, LM = MY

Prove that : X , M , Z are on the same straight line.
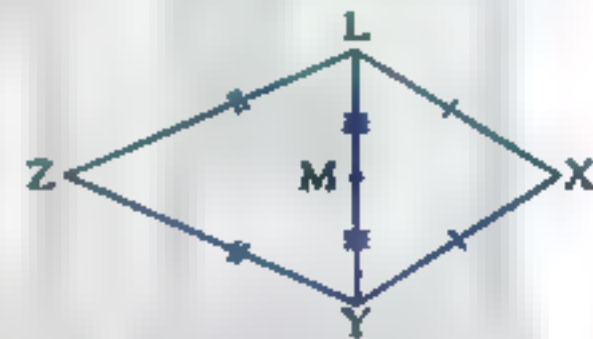
[b] In the opposite figure :

AB > AC , DB = DC = AD

Prove that : m (∠ BAD) < m (∠ CAD)
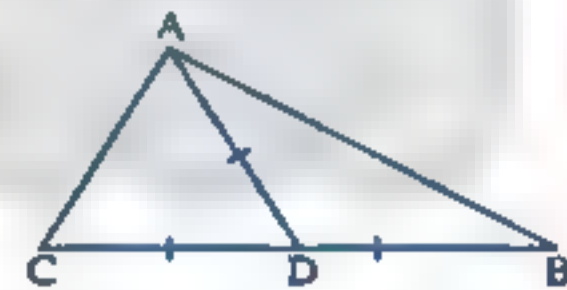
5 [a] In the opposite figure :

△ ABC is a right-angled triangle at B

, m (∠ C) = 30° , D is the midpoint of $\overline{AC}$

, E is the midpoint of $\overline{BC}$, AC = 9 cm.

Find the length of each of : $\overline{BD}$, $\overline{BM}$, $\overline{AB}$, $\overline{MD}$
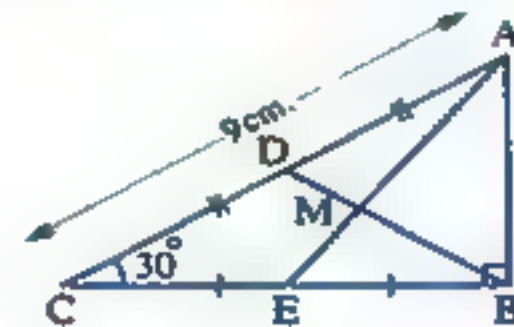
[b] ABC is a triangle such that

m (∠ A) = (2 X)° , m (∠ C) = (X + 40)° , m (∠ B) = (3 X − 10)°

Prove that : AB = AC

88

9 **El-Sharkia Governorate**   Zagazig English Language School for Girls

Answer the following questions :

1 Choose the correct answer :

[1] In $\triangle ABC$, $m(\angle A) = 60°$, $m(\angle C) = 45°$, then ......

(a) $AB < AC$ (b) $AB = AC$ (c) $AB > AC$ (d) $AB = BC$

[2] If M is the point of concurrence of the medians of $\triangle ABC$, $\overline{AD}$ is a median , then $MA =$ ......

(a) $2\,AD$ (b) $\frac{2}{3}\,AD$ (c) $\frac{3}{2}\,AD$ (d) $\frac{1}{2}\,MD$

[3] In $\triangle ABC$, $AB = 4$ cm. , $BC = 6$ cm. , then $AC \in$ ......

(a) $]2 , 4[$ (b) $[2 , 10]$ (c) $]2 , 10[$ (d) $[0 , 10]$

[4] The number of axes of symmetry of the equilateral triangle equals ......

(a) zero   (b) 1   (c) 2   (d) 3

[5] In $\triangle ABC$, $AB = AC$, $m(\angle B) = X + 30°$, $m(\angle C) = 2X + 5°$, then $X =$ ......

(a) $25°$ (b) $20°$ (c) $35°$ (d) $3°$

[6] In the opposite figure :

$AD = DC$, $m(\angle C) = 30°$, $m(\angle ABC) = 90°$, $AB = 5$ cm. , then the perimeter of $\triangle ABD =$ ...... cm.

(a) 5   (b) 15

(c) 20   (d) 25
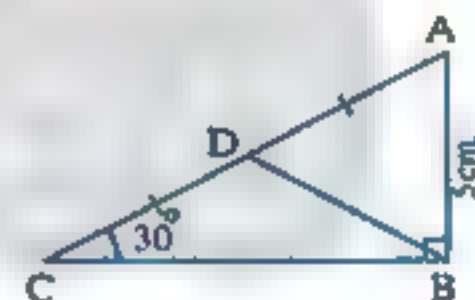
2 Complete :

[1] ABCD is a rectangle , $AB = 3$ cm. , $BC = 4$ cm. , then $BD =$ ...... cm.

[2] In $\triangle ABC$, if D is the midpoint of $\overline{BC}$ and $AD = \frac{1}{2} BC$, then $m(\angle CAB) =$ ......°

[3] The longest side in the right-angled triangle is ......

[4] If $\triangle ABC \equiv \triangle XYZ$, then $AC - XZ =$ ......

[5] The median that is drawn from the vertex angle of an isosceles triangle ...... and ......

Geometry

3 **[a]** In the opposite figure :

$\overrightarrow{XL}$ bisects $\angle YXZ$, $m(\angle Y) = 30°$

, $m(\angle Z) = 70°$

1 Find : $m(\angle LXZ)$ and $m(\angle XLZ)$

2 Prove that : $\triangle XLZ$ is an isosceles triangle.
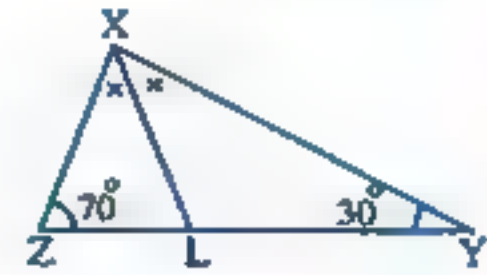
[b] In the opposite figure :

ABCD is a quadrilateral

, $AD = DC$, $BC > AB$

Prove that : $m(\angle BAD) > m(\angle BCD)$
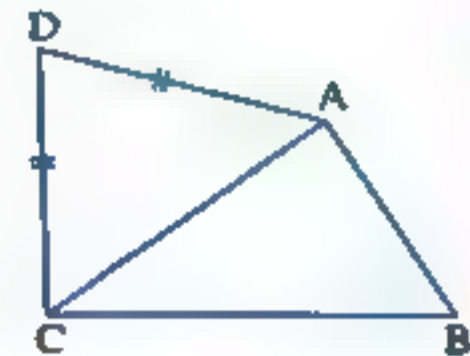
4 **[a]** In the opposite figure :

X is the midpoint of $\overline{AC}$, $AB = 8$ cm.

, Y is the midpoint of $\overline{BC}$, $AM = 5$ cm. , $BX = 6$ cm.

Find : The perimeter of $\triangle XMY$

[b] In the opposite figure :

$C \in \overline{BD}$, $CA = CB$

, $\overrightarrow{AB} \parallel \overrightarrow{DE}$

, $m(\angle ACD) = 140°$

Find : $m(\angle A)$ and $m(\angle BDE)$
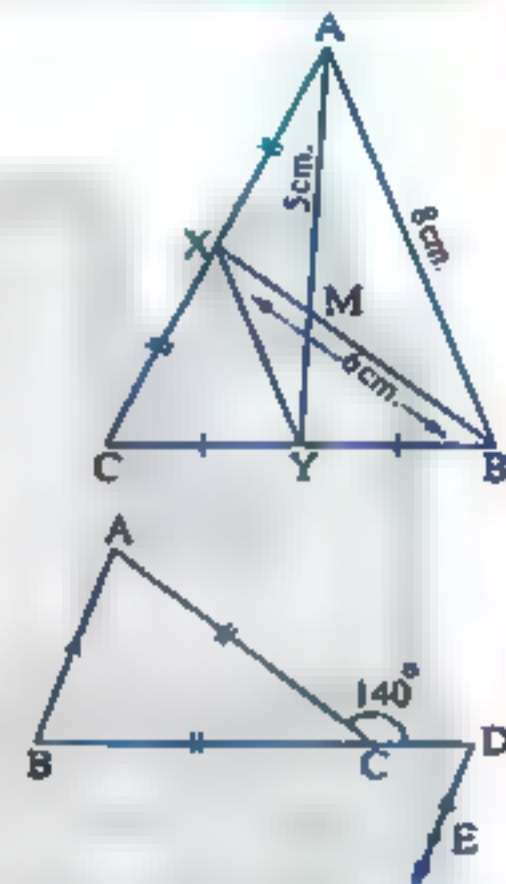
5 **[a]** In the opposite figure :

ABCD is a quadrilateral , $\overline{AD} \parallel \overline{BC}$

, $\overrightarrow{BD}$ bisects $\angle ABC$

, $\overrightarrow{AE}$ bisects $\angle BAD$

Prove that : **1** $AD = AB$ **2** $\overline{AE} \perp \overline{BD}$
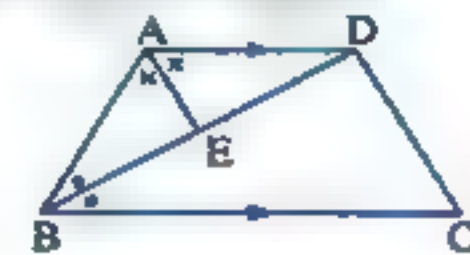
[b] In the opposite figure :

$E \in \overrightarrow{BA}$, $\overline{AD} \parallel \overline{BC}$

, $m(\angle DAE) = 75°$

, $m(\angle DAC) = 35°$

Prove that : $BC > AB$

90
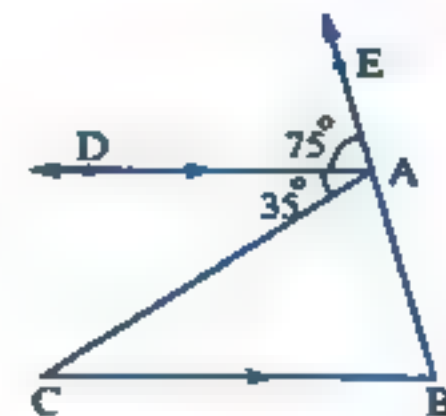
10 El-Monofia Governorate   El-Shohadaa Directorate
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

[1] The intersecting point of the medians of the triangle divides each median in the ratio of .... from its base.

(a) 1 : 2   (b) 2 : 1   (c) 3 : 1   (d) 1 : 3

[2] The number of symmetry axes of the isosceles triangle is ....

(a) 1   (b) 2   (c) 3   (d) 4

[3] The sum of lengths of any two sides of a triangle .... the length of the third side.

(a) <   (b) >   (c) =   (d) ≡

[4] The diagonals are perpendicular in the ....

(a) trapezium.   (b) parallelogram.   (c) square.   (d) rectangle.

[5] If $\triangle ABC$ is right-angled at B , $AB = 6$ cm. , $BC = 8$ cm. , then the length of the median drawn from B equals .... cm.

(a) 3   (b) 4   (c) 5   (d) 6

[6] If 4 cm. , $(X + 3)$ cm. and 8 cm. are side lengths of an isosceles triangle , then $X =$ ....

(a) 3   (b) 4   (c) 5   (d) 6

2 Complete each of the following :

[1] The base angles in an isosceles triangle are ....

[2] If $m(\angle A) = 100°$, then m (reflex $\angle A$) = ...°

[3] The number of medians of the isosceles triangle is ....

[4] In $\triangle ABC$, if $AB > BC$, then $m(\angle A)$ .... $m(\angle C)$

[5] The bisector of the vertex angle of an isosceles triangle bisects the base and ....

3 [a] In the opposite figure :

ABC is a triangle in which D , E are the midpoints of $\overline{AB}$, $\overline{AC}$

, FC = 4 cm. , FB = 6 cm. and BC = 8 cm.

Find : The perimeter of $\triangle DFE$

[b] In the opposite figure :

AC = AD = BD

, $m(\angle B) = 35°$

Find : $m(\angle BAC)$

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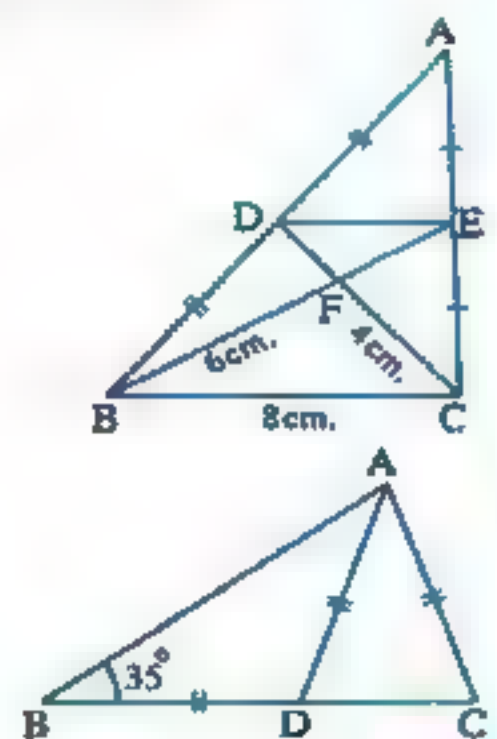
Geometry

4 **[a]** In the opposite figure :

AC = AB

Prove that :

AB > AD
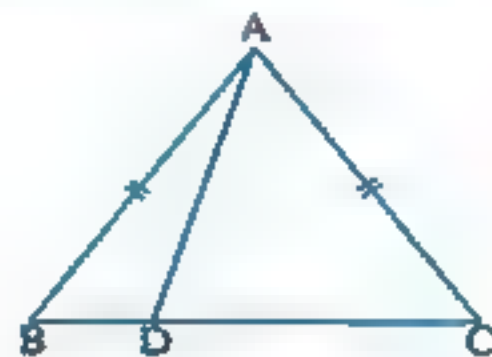
[b] ABC is a triangle in which m ($\angle$ A) = 40° , m ($\angle$ B) = 80° Arrange the lengths of the sides of the triangle descendingly.

5 In the opposite figure :

F , E , G are the midpoints of $\overline{AB}$, $\overline{AC}$, $\overline{BC}$

, m ($\angle$ BDC) = 90° , m ($\angle$ CBD) = 30°

, BC = 10 cm.

1 Prove that : FE = DC = GD

2 Find : The perimeter of $\triangle$ GCD
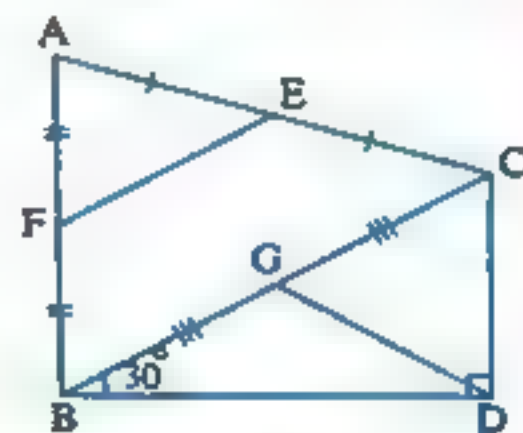
11 El-Dakahlia Governorate

Talkha Educational Directorate
A.M.D.L School

Answer the following questions :

Choose the correct answer from the given ones :

1 The numbers 4 , X + 4 , 8 can be lengths of sides of an isosceles triangle if X = ...

(a) 4   (b) 0   (c) 3   (d) 8

2 In $\triangle$ LMN , if m ($\angle$ M) = 55° , m ($\angle$ N) = 80° , then LM .... MN

(a) <   (b) >   (c) =   (d) twice

3 The measure of the exterior angle of the equilateral triangle equals ....

(a) 30°   (b) 60°   (c) 90°   (d) 120°

4 If $\overline{AD}$ is a median of $\triangle$ ABC , and M is the point of concurrence of the medians , then AD = ... AM

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{3}{2}$

5 The base angles of the isosceles triangle are ....

(a) alternate   (b) corresponding   (c) congruent   (d) supplementary

6 If XA = XB , YA = YB , then $\overleftrightarrow{XY}$ .... $\overline{AB}$

(a) $\perp$ (b) $\cong$ (c) //   (d) =

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هذا العمل خاص بموقع ذاكرولي التعليمي ولا يسمح بتداوله على مواقع أخرى

2 Complete the following :

1. The number of axes of symmetry of the isosceles triangle is ⋯⋯⋯⋯

2. The bisector of the vertex angle of the isosceles triangle ⋯⋯⋯⋯⋯

3. The medians of the triangle intersect at ⋯⋯⋯⋯⋯

4. The longest side in the right-angled triangle is the ⋯⋯⋯⋯

5. In $\triangle ABC$, if $AB = AC$, $m (\angle C) = 40°$, then $m (\angle A) = $ ⋯⋯⋯⋯⋯°

3 [a] In the opposite figure :

$m (\angle ABC) = m (\angle BDE) = 90°$

, $m (\angle E) = 30°$

, D is the midpoint of $\overline{AC}$
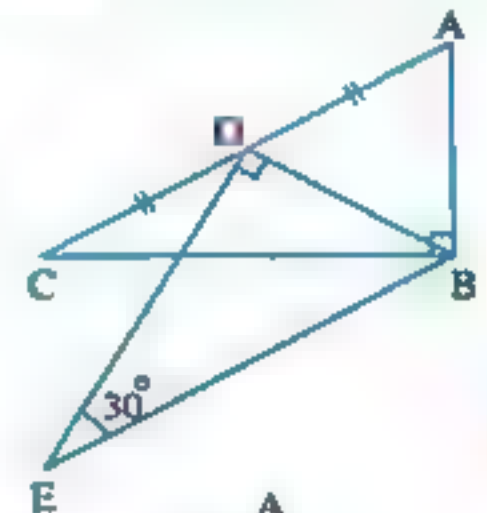
Prove that : $AC = BE$

[b] In the opposite figure :

$AB = AC$, $DC > DB$

Prove that :

$m (\angle ABD) > m (\angle ACD)$
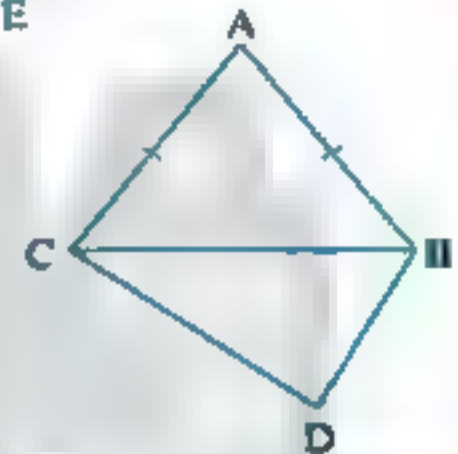
4 [a] In the opposite figure :

ABC is a triangle , $\overrightarrow{AD} // \overrightarrow{CB}$

, $m (\angle DAB) = 60°$, $m (\angle BAC) = 50°$

Prove that : $AB > AC$
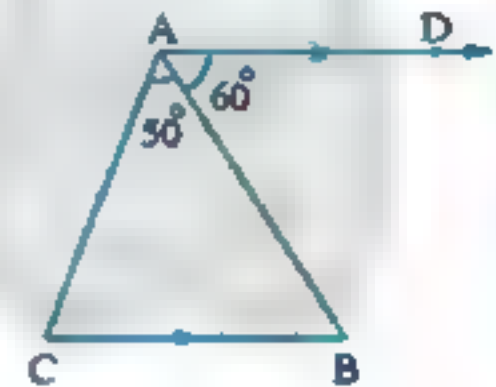
[b] In the opposite figure :

$C \in \overleftrightarrow{LB}$, $AC = BC$

, $m (\angle LCA) = 130°$

, $\overleftrightarrow{LM} // \overleftrightarrow{AB}$

Find : $m (\angle MLC)$
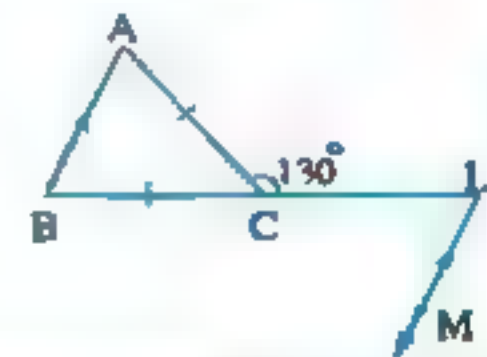
5 [a] In the opposite figure :

$m (\angle ABC) = 90°$, X , Y , D

are the midpoints of $\overline{AB}$, $\overline{BC}$, $\overline{XY}$

respectively , if AC = 22 cm.

, find : BD

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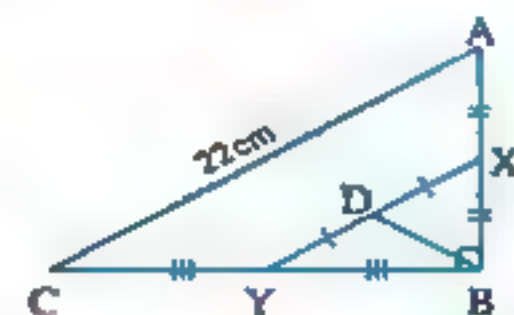
Geometry

[b] In the opposite figure :

AB = AC , EB = EC

Prove that : BD = CD
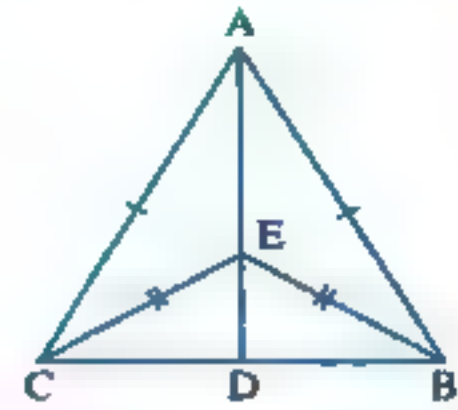
Answer the following questions :

1 Complete :

1 The base angles in an isosceles triangle are ⋯⋯⋯⋯

2 If the angles of a triangle are congruent , then the triangle is ⋯⋯⋯⋯

3 In $\triangle$ ABC , if m ($\angle$ A) = 70° , m ($\angle$ B) = 50° , then the longest side is ⋯⋯⋯⋯

4 . The point of concurrence of the medians of the triangle divides each median in the ratio of ⋯⋯⋯⋯ : ⋯⋯⋯⋯ from its vertex.

5 In $\triangle$ ABC , if m ($\angle$ A) = 30° and m ($\angle$ B) = 90° , then AC = ⋯⋯⋯⋯ BC

2 Choose the correct answer :

1 The triangle which has three axes of symmetry is ⋯⋯⋯⋯

(a) scalene.　　(b) isosceles.　　(c) right-angled.　　(d) equilateral.

2 If the lengths of two sides in an isosceles triangle are 3 cm. and 7 cm. , then the length of the third side equals ⋯⋯⋯⋯ cm.

(a) 3　　(b) 4　　(c) 6　　(d) 7

3 XYZ is a triangle in which m ($\angle$ Z) = 70° and m ($\angle$ Y) = 60° , then YZ ⋯⋯⋯⋯ XY

(a) >　　(b) <　　(c) =　　(d) twice

4 In the opposite figure :

CA = CB , m ($\angle$ B) = X°

, m ($\angle$ ACD) = 100° where C $\in \overline{BD}$

, then X = ⋯⋯⋯⋯
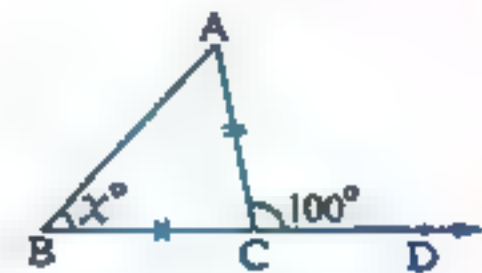
(a) 50°　　(b) 100°　　(c) 150°　　(d) 200°

5 In $\triangle$ ABC , if AB = AC and $\overline{AD}$ is a median , then $\overline{AD}$ ⋯⋯⋯⋯ $\overline{BC}$

(a) ≡　　(b) ⊥　　(c) ⊂　　(d) //

6 In $\triangle$ ABC , if AB = 3 cm. , BC = 5 cm. , then AC $\in$ ⋯⋯⋯⋯

(a)]2 , 8[　　(b)]2 , 7[　　(c)]2 , 15[　　(d)]8 , 15[

94

3 [a] ABC is a triangle in which m ($\angle$ A) = 40° , m ($\angle$ B) = 75° Arrange the lengths of sides of the triangle descendingly.

[b] In the opposite figure :

AB = AC , $\overrightarrow{AE}$ bisects $\angle$ BAC

, $\overrightarrow{AE} \cap \overline{BC} = \{E\}$, D $\in \overline{AE}$

Prove that : BD = CD
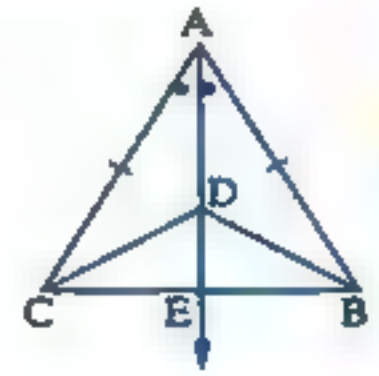
4 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, AD = AB

, m ($\angle$ ABD) = 25° , m ($\angle$ C) = 63°

, m ($\angle$ DBC) = $X°$, m ($\angle$ CDB) = $y°$

Find the value of each of : X and y
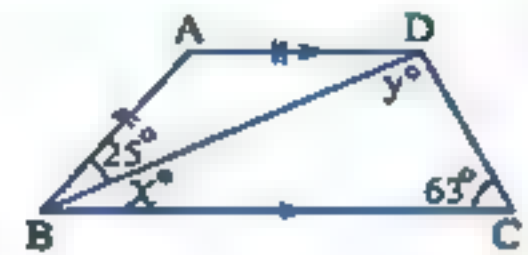
[b] In the opposite figure :

AB = BD = DA

Prove that : BC > AC
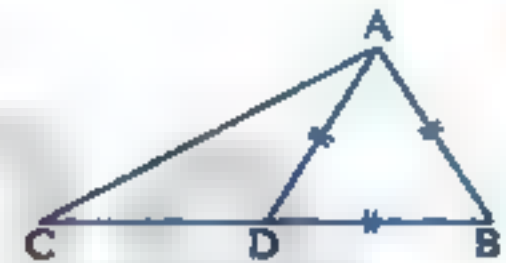
5 [a] In the opposite figure :

ABCD is a quadrilateral

, AB = 6 cm. , BC = 4 cm.

, CD = 7 cm. , AD = 8 cm.

Prove that : m ($\angle$ BCD) > m ($\angle$ BAD)
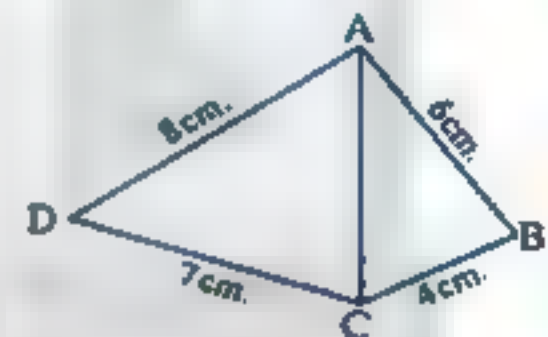
[b] In the opposite figure :

ABC is a triangle , m ($\angle$ ABC) = 90°

, D is the midpoint of $\overline{AC}$

, AC = 12 cm. , m ($\angle$ C) = 30°

, then find : The perimeter of $\triangle$ ABD
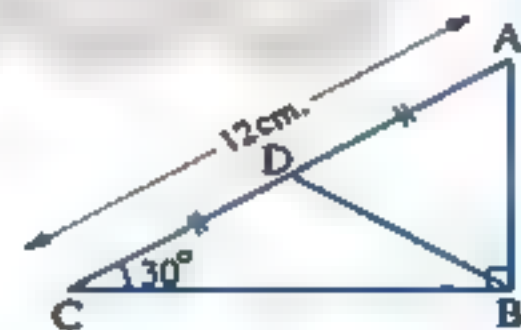
(13) ✗ **El-Beheira Governorate** ✗

Damanhur Directorate
Al-Farabi Language School

Answer the following questions :

1 Complete the following :

1 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals ·············· the length of the hypotenuse.

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Geometry

2 If $\overline{AD}$ is a median in $\triangle ABC$, M is the point of intersection of its medians and AM = 12 cm. , then AD = ············

3 The number of axes of symmetry of the isosceles triangle equals ···············

4 In a triangle , if two angles are unequal in measure , then the greater angle in measure is opposite to ···········

5 If $\overline{AB} \equiv \overline{XY}$ and AB = 5 cm. , then 2 AB − XY = ···············

2 **Choose the correct answer :**

1 The measure of one of the base angles in the isosceles triangle is 65° , then the measure of its vertex angle equals ···············°

(a) 65   (b) 50   (c) 130   (d) 55

2 If 4 cm. , (X + 3) cm. and 8 cm. are side lengths of an isosceles triangle , then X = ···············

(a) 4   (b) 3   (c) 5   (d) 8

3 If $\triangle ABC$ is right-angled at B , AB = 6 cm. , BC = 8 cm. , then the length of the median drawn from B equals ··············· cm.

(a) 10   (b) 8   (c) 6   (d) 5

4 The diagonals are perpendicular in the ···············

(a) trapezium.   (b) parallelogram.   (c) square.   (d) triangle.

5 The point of concurrence of the medians of the triangle divides each median in the ratio of ··············· from the base.

(a) 1 : 2   (b) 1 : 3   (c) 2 : 1   (d) 3 : 1

6 The acute angle supplements ··············· angle.

(a) an acute   (b) an obtuse   (c) a right   (d) a reflex

3 [a] In the opposite figure :

$\overline{BE}$, $\overline{CD}$ are medians in $\triangle ABC$

, MB = 6 cm. , MC = 8 cm.

, BC = 12 cm.

Find : The perimeter of $\triangle MDE$

[b] In the opposite figure :

AB = BC = AC = DC

Prove that : m (∠ BAD) = 90°

96
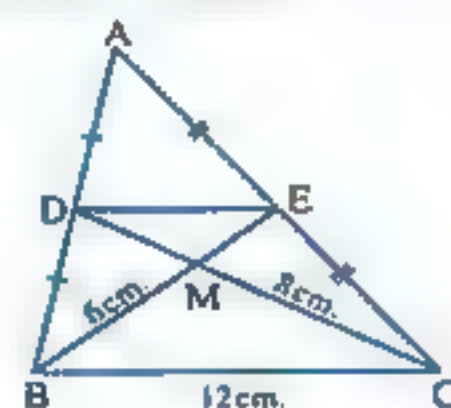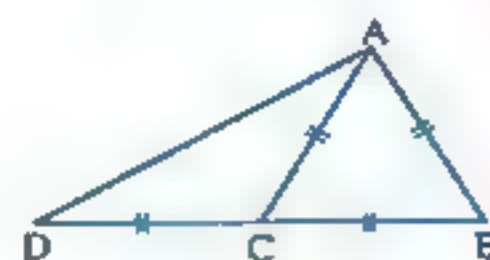
Final Examinations

4 **[a] In the opposite figure :**

ABCD is a quadrilateral in which AB = AD = 5 cm.

, BC = 2 cm. , DC = 4 cm.

Prove that :

m (∠ ABC) > m (∠ ADC)
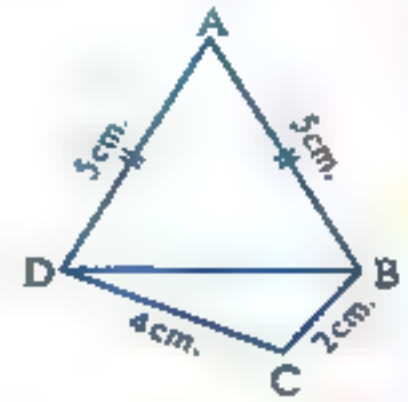
[b] In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, m (∠ BAC) = 70°

and m (∠ DAC) = 35°

Prove that : AC > BC
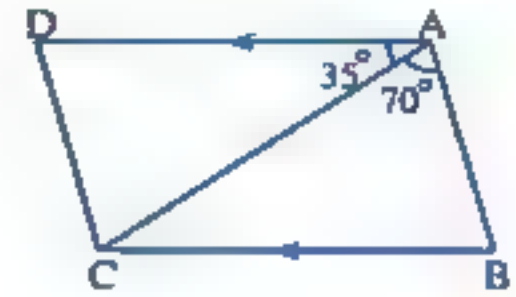
5 **In the opposite figure :**

ABC is a triangle in which

AB = AC , BX = CY

If m (∠ B) = 50° , m (∠ CAY) = 30°

1 Prove that : AYX is an isosceles triangle.

2 Find : m (∠ AXY)
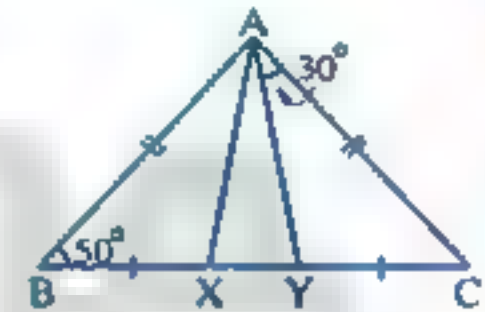
14 **El-Menia Governorate**   El-Menia Directorate of Education
Kafr El-Mansoura Formal Language School

Answer the following questions :

1 **Choose the correct answer :**

1 The triangle in which the measures of two angles of it are 42° and 69° is ·················

  (a) an isosceles triangle.   (b) an equilateral triangle.

  (c) a scalene triangle.   (d) a right-angled triangle.

2 In Δ ABC which is right-angled at B , if AC = 20 cm. , then the length of the median drawn from B equals ············

  (a) 10 cm.   (b) 8 cm.   (c) 6 cm.   (d) 5 cm.

3 In Δ ABC , if m (∠ B) = 130° , then the longest side of it is ···············

  (a) $\overline{BC}$ (b) $\overline{AC}$ (c) $\overrightarrow{AB}$ (d) its median.

4 The two angles are said to be supplementary if the sum of their measures is ···········

  (a) zero°   (b) 90°   (c) 180°   (d) 360°

Geometry

5. The lengths which can be lengths of sides of a triangle are ············ ·········

    (a) (0 , 3 , 5)   (b) (3 , 3 , 5)   (c) (3 , 3 , 6)   (d) (3 , 3 , 7)

6. $\triangle$ XYZ is an isosceles triangle in which m ($\angle$ X) = 100° , then m ($\angle$ Y) = ······ ·······

    (a) 100°   (b) 80°   (c) 60°   (d) 40°

---

2 Complete :

1. The sum of measures of the accumulative angles at a point is ··············°

2. The ray drawn from the midpoint of a side of a triangle parallel to another side ·············· the third side.

3. If the measure of an angle in an isosceles triangle equals 60° , then the triangle is ···············

4. The point of concurrence of the medians of the triangle divides each median in the ratio of ·············· from the base.

5. In $\triangle$ ABC , m ($\angle$ B) = 70° , m ($\angle$ C) = 50° , then AC ··············· AB

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3 [a] In the opposite figure :

$\overline{AB} \cap \overline{CD} = \{M\}$, $\overline{AC} \perp \overline{CD}$

, $\overline{BD} \perp \overline{CD}$

Prove that : AB > CD

[b] In the opposite figure :

AB = AD , BC = CD

Prove that :

m ($\angle$ ABC) = m ($\angle$ ADC)

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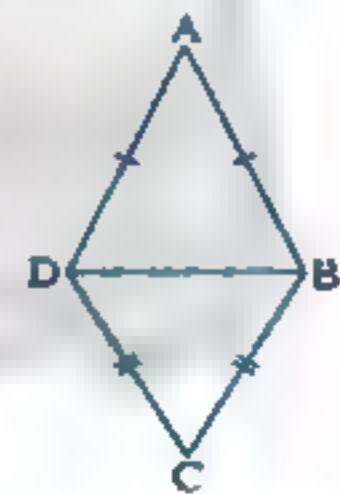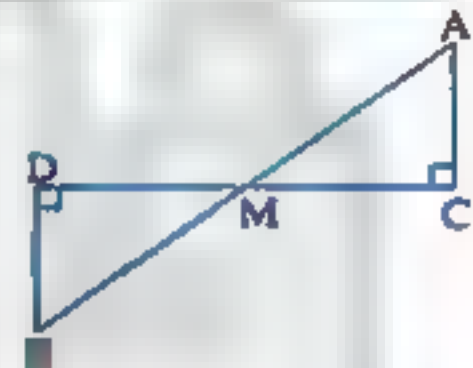
4 [a] In the opposite figure :

AB > BC , $\overrightarrow{XY}$ // $\overline{BC}$

Prove that : AX > XY

[b] In the opposite figure :

ABC is a triangle in which AC = BC

, $\overrightarrow{AD}$ // $\overline{BC}$, m ($\angle$ DAC) = 30°

Find with proof :

The measures of the angles of $\triangle$ ABC

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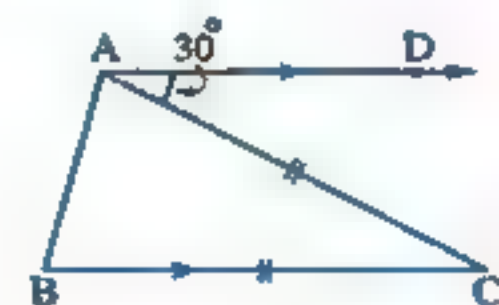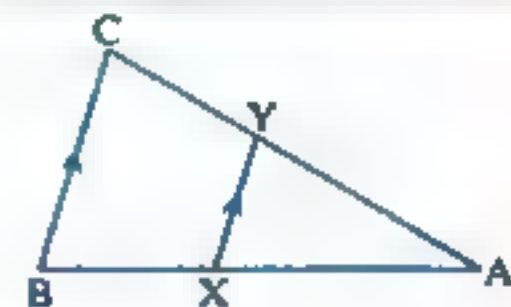
5 **[a]** In the opposite figure :

m (∠ ABC) = m (∠ BDE) = 90°

, m (∠ E) = 30°

, D is the midpoint of $\overline{AC}$
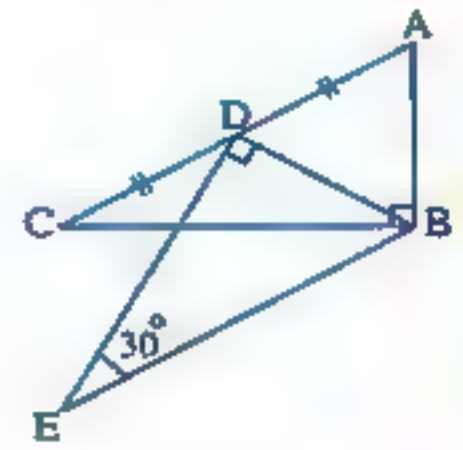
Prove that : AC = BE

[b] In the opposite figure :

AB = AC , $\overrightarrow{BD}$ bisects ∠ ABC

and $\overrightarrow{CD}$ bisects ∠ ACB

Prove that :

△ DBC is isosceles.

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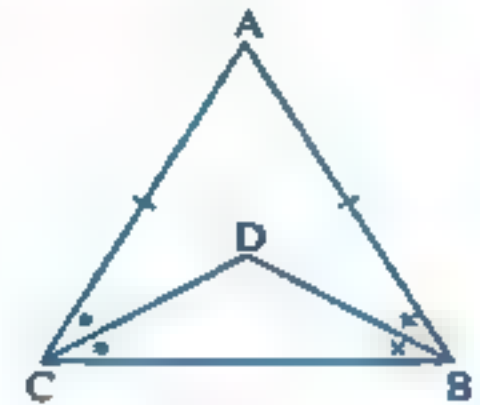
15 ▶ **Qena Governorate**

Qena Directorate of Education
Math's Supervision

Answer the following questions :

1 **Complete each of the following :**

1 The number of axes of symmetry of the equilateral triangle equals ···············

2 In the triangle ABC , if AC = BC and m (∠ C) = 80° , then m (∠ A) = ··············°

3 XYZ is a triangle , m (∠ X) = 60° , m (∠ Y) = 40° , then XZ ·········· ZY

4 The point of intersection of the medians of the triangle divides each of them with the ratio of ··············· from the vertex.

5 The perpendicular bisector of a line segment is called ···············

2 **Choose the correct answer from those given :**

1 The lengths 9 cm. , 4 cm. and ··············· may be the side lengths of an isosceles triangle.

(a) 9 cm.   (b) 13 cm.   (c) 5 cm.   (d) 4 cm.

2 $\overline{AD}$ is a median of △ ABC , and M is the point of concurrence of the medians , then AM = ··············· AD

(a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{3}{2}$ (d) 2

3 The measure of the exterior angle of an equilateral triangle equals ···············

(a) 30°   (b) 60°   (c) 120°   (d) 90°

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Geometry

4 In the triangle ABC , if m ($\angle$ B) = 90° , then the greatest side in length is ·········

(a) $\overline{AB}$ (b) $\overline{AC}$ (c) $\overline{CB}$ (d) $\overline{XY}$

5 In $\triangle$ XYZ , if XY > ZX , then m ($\angle$ Y) ·········· m ($\angle$ Z)

(a) >   (b) <   (c) =   (d) ≅

3 [a] In the opposite figure :

ABC is a triangle in which AB = AC

, $\overline{XY}$ // $\overline{BC}$

Prove that :

$\triangle$ AXY is an isosceles triangle.
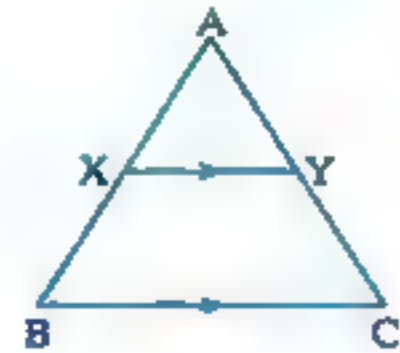
[b] In $\triangle$ ABC , m ($\angle$ A) = 40° , m ($\angle$ B) = 75° Arrange the lengths of sides of $\triangle$ ABC in an ascending order.

4 [a] In the opposite figure :

ABC is a triangle in which AB = 14 cm.

, AC = 18 cm. , BC = 20 cm.

, E is the midpoint of $\overline{AC}$

, F is the midpoint of $\overline{AB}$, and $\overline{AD} \perp \overline{BC}$

Find : The perimeter of $\triangle$ DEF
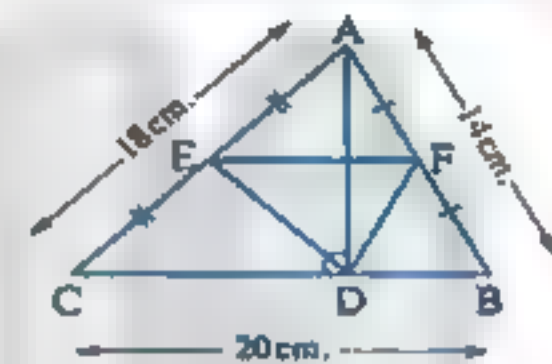
[b] In the opposite figure :

ABCD is a quadrilateral in which AB = 8 cm.

, BC = 6 cm. , CD = 9 cm.

and DA = 10 cm.

Prove that : m ($\angle$ ABC) > m ($\angle$ ADC)
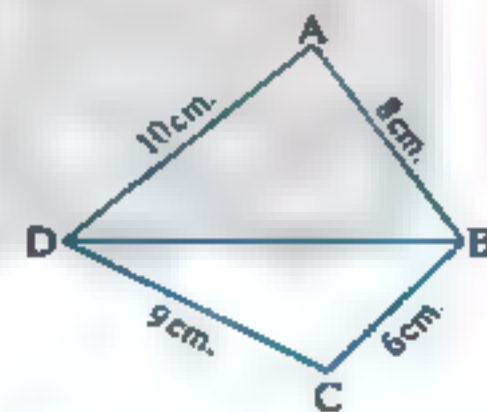
5 [a] In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, m ($\angle$ BAC) = 80°

, m ($\angle$ DAC) = 30°

Prove that : BC > AB
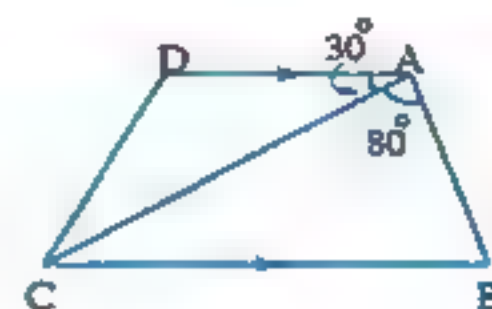
[b] Complete : In $\triangle$ ABC , if AB = 7 cm. , AC = 5 cm. , then ········· < BC < ·········

100

Final Examinations of

Geometry
2019

Some Schools Examinations on Geometry

1 **Cairo Governorate**

East Nasr city administration
Heliopolis Language School
Mathematics Department

Answer the following questions :

1 **Complete :**

(1) The intersection point of the three medians of the triangle divide the median in the ratio ·········· ········· from the vertex.

(2) In △ ABC : If CA = CB and m (∠ C) = m (∠ A) , then m (∠ B) = ··············°

(3) The bisector of the vertex angle of the isosceles triangle is ············· and ··············

(4) If the measure of an angle in the isosceles triangle is 100° , then the number of axes of symmetry of △ ABC is ···············

(5) The longest side in the right-angled triangle is ·· ············

2 **Choose the correct answer :**

(1) In △ ABC : If m (∠ B) = 90° , then ···············
   (a) AC > CB   (b) AB > AC   (c) BC > AC   (d) AB = AC

(2) If the lengths of two sides of an isosceles triangle are 3 cm. and 7 cm. , then the length of the third side is ····· ··········
   (a) 3   (b) 4   (c) 7   (d) 10

(3) In △ ABC : If AB = AC and m (∠ A) = 60° , then the number of axes of symmetry of the triangle ABC is ···············
   (a) 0   (b) 1   (c) 2   (d) 3

(4) Any triangle has ·············· medians.
   (a) 0   (b) 1   (c) 2   (d) 3

(5) If ABCD is a square , then the axes of symmetry of $\overline{AC}$ is ···············
   (a) $\overrightarrow{AD}$ (b) $\overrightarrow{BC}$ (c) $\overrightarrow{BD}$ (d) $\overrightarrow{AB}$

3 **[a] In the opposite figure :**
   XY > XL
   and YZ > ZL
   Prove that : m (∠ XLZ) > m (∠ XYZ)

[b] In the opposite figure :
   ∠ ADC ≡ ∠ AED and BD = CE
   , B , D , E and C are collinear.
   Prove that : △ ABC is an isosceles triangle.

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هذا العمل خاص بموقع ذاكرولي التعليمى ولا يسمح بتداوله على مواقع أخرى
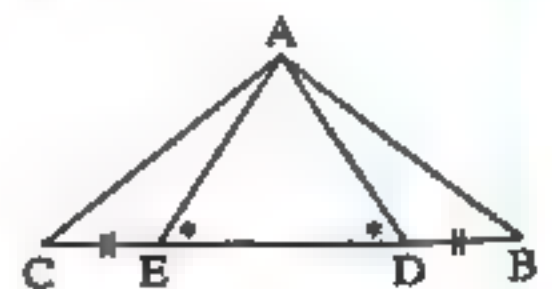
[4] [a] In the opposite figure :

m (∠ XYZ) = 90°

, D is midpoint of $\overline{XL}$

, E is midpoint of $\overline{ZL}$ and M is the midpoint of $\overline{XZ}$

Prove that : DE = YM
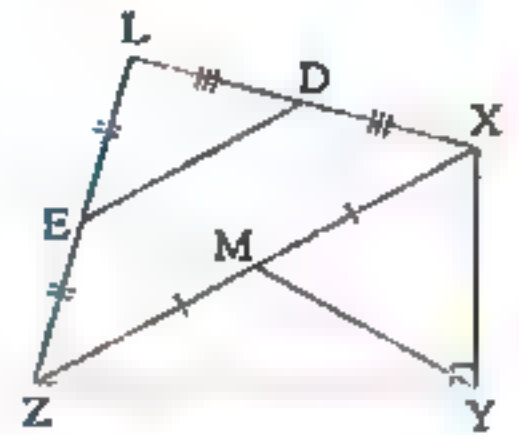
[b] In the opposite figure :

ABC is a triangle , X is the midpoint of $\overline{AB}$

, Y is midpoint of $\overline{BC}$, XY = 5 cm. and $\overline{XC} \cap \overline{AY} = \{M\}$

where CM = 8 cm. , YM = 3 cm.

Find : (1) The perimeter of △ MXY

(2) The perimeter of △ MAC
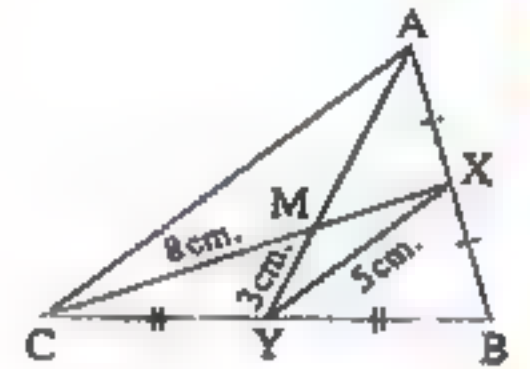
[5] [a] In the opposite figure :

AC > AB and DB = DC

Prove that : m (∠ ABD) > m (∠ ACD)

[b] In the opposite figure :

$C \in \overrightarrow{BD}$, m (∠ ACD) = 130°

and m (∠ BAE) = m (∠ CAE) = 40°

Prove that : (1) $\overline{AE} \perp \overline{BC}$

(2) E bisects $\overline{BC}$
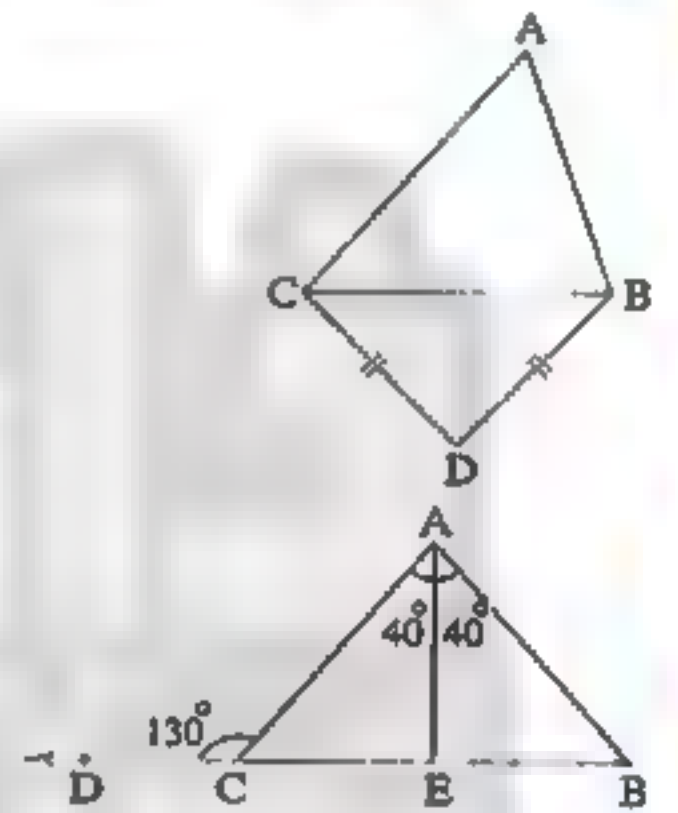
2 | Cairo Governorate

Maadi Educational Zone
Sakkara Language School

Answer the following questions :

[1] Complete :

(1) In △ XYZ , m (∠ X) = 90° , then the longest side is ....

(2) The base angles of the isosceles triangle are ....

(3) ABC is a triangle in which AB = 4 cm. , CB = 7 cm. , then AC ∈] .... , ... [

(4) If A ∈ the axis of symmetry of $\overline{XY}$, then .... = ...

(5) If the measure of an angle in the isosceles triangle equals 60° , then the triangle has .... axes of symmetry.

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Geometry

2 **Choose the correct answer :**

(1) The measure of the exterior angle of equilateral triangle = ...

(a) 90° (b) 120° (c) 45° (d) 60°

(2) If $\overline{AD}$ is a median in △ ABC and M is the point of intersection of the medians , then AM = ... AD

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{3}{2}$ (d) $\frac{1}{2}$

(3) In △ XYZ , if m (∠ Z) = 70° and m (∠ Y) = 60° , then YZ .... XY

(a) < (b) = (c) > (d) is twice

(4) The numbers 4 , 8 , ... can be lengths of sides of an isosceles triangle.

(a) 4 (b) 8 (c) 12 (d) 3

(5) In △ ABC , if m (∠ B) = 90° and m (∠ C) = 30° , then AB .... AC

(a) $\frac{1}{3}$ (b) 2 (c) equals (d) $\frac{1}{2}$

3 **[a] In the opposite figure :**

D is the midpoint of $\overline{AB}$, E is the midpoint of $\overline{AC}$, $\overline{CD} \cap \overline{BE} = \{M\}$

If DE = 4 cm. , DM = 3 cm. , BE = 6 cm.

Find : The perimeter of △ BMC
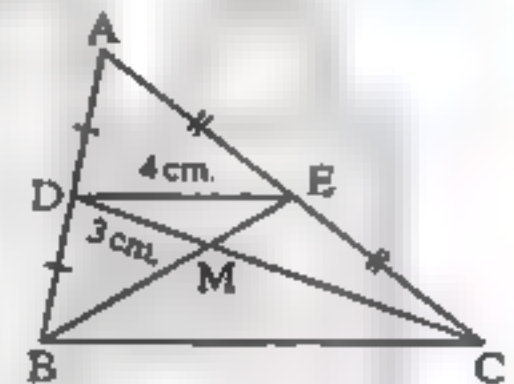
[b] In △ ABC , if AB = 5 cm. , BC = 7 cm. and AC = 9 cm.

Arrange the measures of its angles in a descending order.

4 **[a] In the opposite figure :**

ABC is a right angled triangle at B

, m (∠ ACB) = 30° , AB = 5 cm.

, DH = 5 cm. and H is the midpoint of $\overline{AC}$

Prove that : m (∠ ADC) = 90°
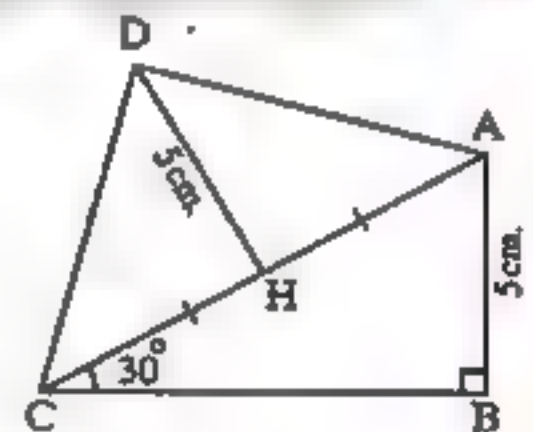
[b] In the opposite figure :

If AC > AB and DC = DB

Prove that : m (∠ ABD) > m (∠ ACD)

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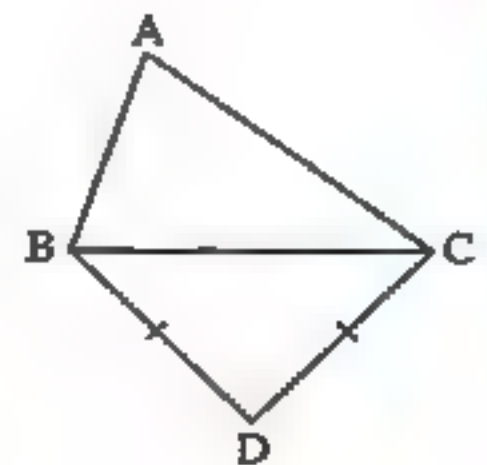
5 **[a]** In the opposite figure :

If AB = AC

Prove that : AD = AE
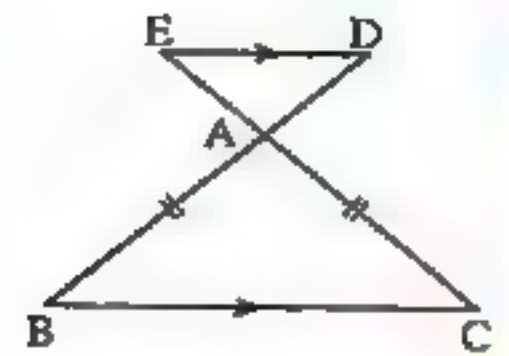
[b] In the opposite figure :

ABC is a triangle in which :

AB = AC , BD = CH

Prove that : ① △ ADH is an isosceles triangle.

        ② ∠ AHD = ∠ ADH
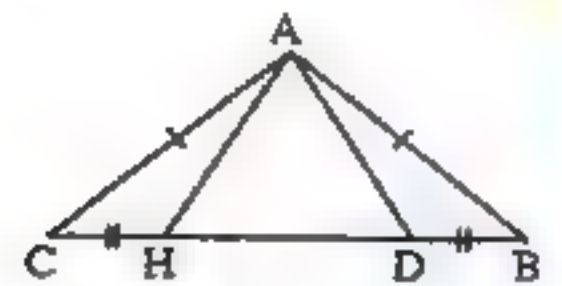
Cairo Governorate — El-Sayda Zinab Educational Zone

Answer the following questions :

1 Choose the suitable answer :

① The number of axes of symmetry of an equilateral triangle is ....

(a) 0   (b) 1   (c) 2   (d) 3

② An isosceles triangle , one of its base angles has measure 50° , then the measure of the vertex angle = ...

(a) 50°   (b) 60°   (c) 70°   (d) 80°

③ $\overline{AD}$ is a median of triangle ABC , and M is the point of intersection of the medians , then AM = ... AD

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$

④ If the lengths of two sides of a triangle are 4 cm. and 8 cm. , then the length of the third side = ... cm.

(a) 3   (b) 4   (c) 8   (d) 12

⑤ In a triangle ABC , if m (∠ A) = 80° and m (∠ C) = 60° , then AB .... BC

(a) <   (b) >   (c) =   (d) ≥

2 Complete :

① If XYZ is a right-angled triangle at Y , then the longest side is ....

② The sum of measures of any two consecutive angles in the parallelogram = ... °

③ The straight line perpendicular to the midpoint of a line segment is called ....

④ The bisectors of the vertex angle of an isosceles triangle .... and ....

⑤ The measure of the exterior angle of the equilateral triangle = ... °

المعاصر رياضيات (كراسة الطالب)/٢ إعدادى/ت ١(ف ١٧ : ١٧)   **129**

Geometry

3 [a] In the opposite figure :

ABC is a right-angled triangle at B

, m (∠ ACB) = 30° , AB = 5 cm.

, E is midpoint of $\overline{AC}$

If DE = 5 cm. then prove that : m (∠ ADC) = 90°
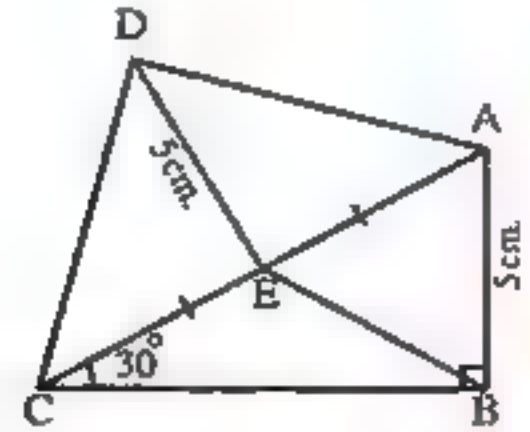
[b] In the opposite figure :

ABC is a triangle , X is the midpoint of $\overline{AB}$, Y is the midpoint of $\overline{BC}$

, XY = 5 cm. , $\overline{XC} \cap \overline{AY} = \{M\}$

where : CM = 8 cm. , YM = 3 cm.

Find with proof : The length of each of : ① $\overline{AM}$ ② $\overline{MX}$ ③ $\overline{AC}$
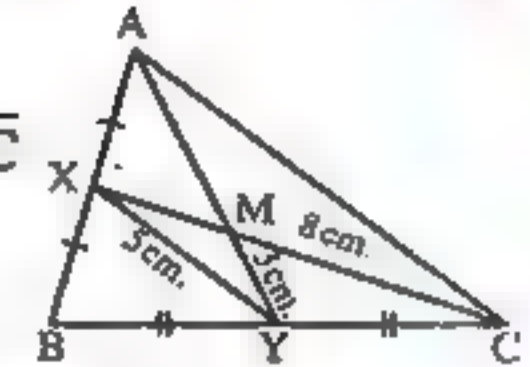
4 [a] In the opposite figure :

ABC is a triangle in which : AB = BC , $\overrightarrow{AD}$ // $\overline{BC}$

, m (∠ DAB) = 30°

Find : The measures of the angles of Δ ABC
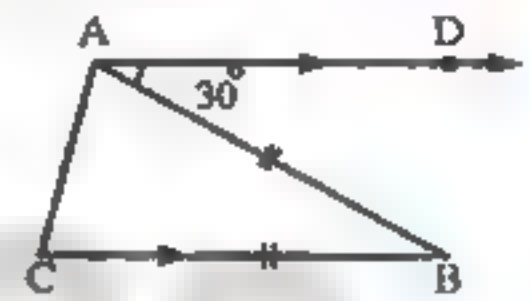
[b] In the opposite figure :

$\overrightarrow{AD}$ // $\overline{BC}$, m (∠ BAC) = 80°

, m (∠ DAC) = 30°
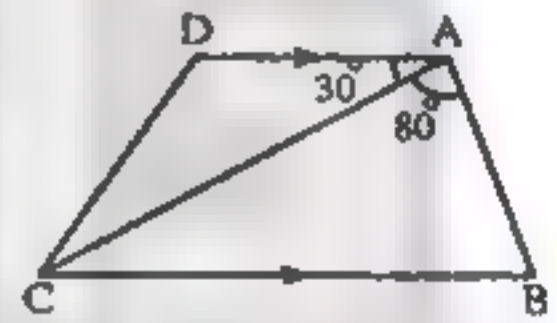
Prove that : BC > AB

5 In the opposite figure :

ABCD is a quadrilateral in which : AB = AD = 5 cm.

, BC = 2 cm. , DC = 4 cm.

Prove that : m (∠ ABC) > m (∠ ADC)
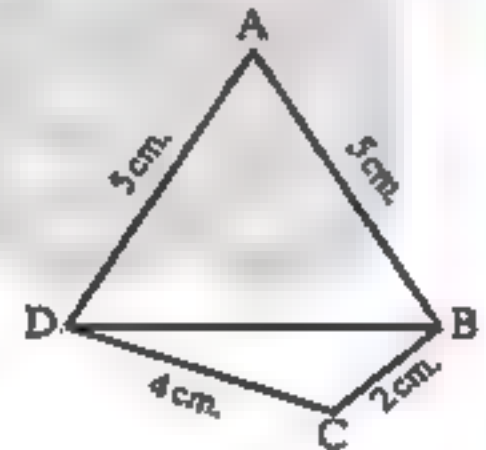
Giza Governorate   Dokki District
Modern Narmer Language School

Answer the following questions

1 Choose the correct answer from those given :

① In the opposite figure :

Δ ADB , m (∠ ADB) = 90° , BD = 5 cm.

and AB = 10 cm. , then m (∠ A) = ·············°

(a) 30   (b) 50   (c) 70   (d) 90

130
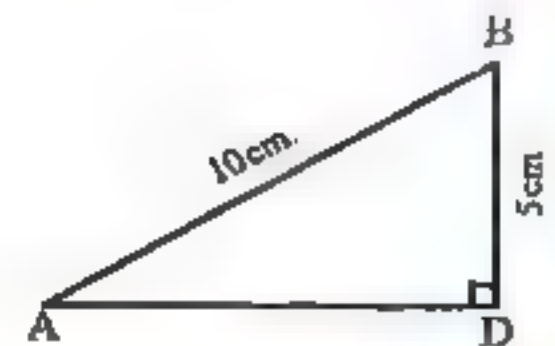
② In the opposite figure :

If AB = AC and BE = BC

, then : m (∠ ABE) = ············ ...

(a) 30°   (b) 40°

(c) 70°   (d) 110°
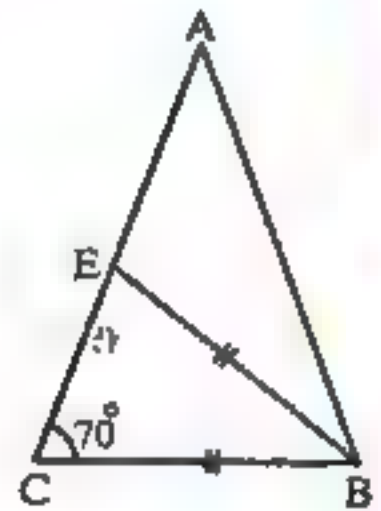
③ In the opposite figure :

△ ABC , AB = BC

, an altitude is drawn from B to $\overline{AC}$ and intersects $\overline{AC}$ at D

which conclusion is not always true ?

(a) m (∠ ABD) = m (∠ CBD)

(b) m (∠ BDA) = m (∠ BDC)

(c) AD = BD

(d) AD = DC
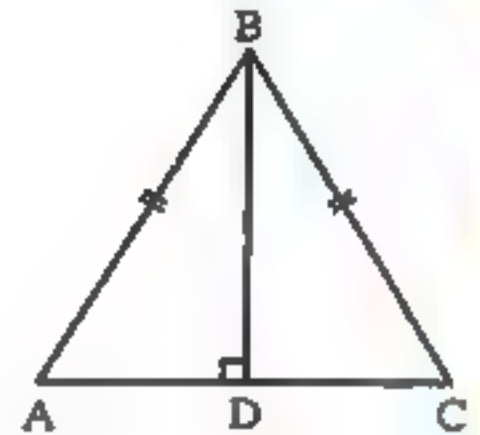
④ Which set of numbers represents the lengths of the sides of a triangle ?

(a) {5 , 18 , 13}   (b) {6 , 17 , 22}   (c) {16 , 24 , 7}   (d) {26 , 8 , 15}

⑤ The point of concurrency of medians divides each median in the ratio ············· from the base.

(a) 1 : 2   (b) 2 : 1   (c) 3 : 1   (d) 2 : 3

2 **Complete :**

① The longest side in the right-angled triangle is ···············

② If the measure of an angle in the isosceles triangle equals 60° , then the triangle is ···············

③ In the opposite figure :

X = ···············° and y = ···············°
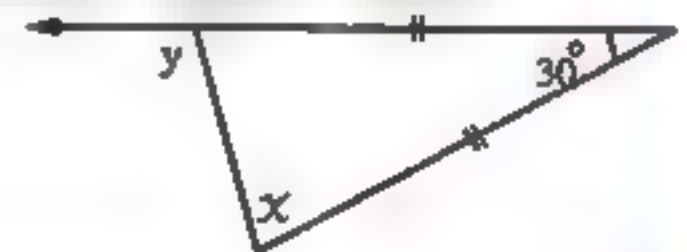
④ If the length of the median drawn from the right vertex of a triangle is 6 cm. , then the length of the hypotenuse is ··············· cm.

⑤ In △ ABC , m (∠ A) = 60° , m (∠ B) = 50° , then the longest side is ··············· ...

3 [a] In the opposite figure :

AD = AE and BD = CE

Prove that : △ ABC is an isosceles triangle.
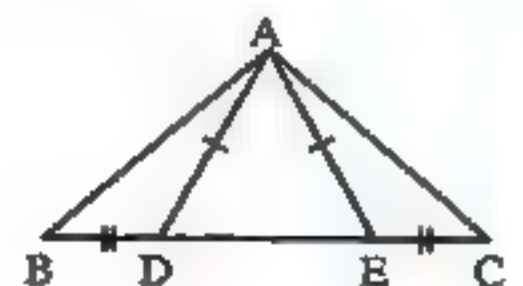
Geometry

[b] In the opposite figure :

$\triangle$ ABC is right-angled at B

, D is the midpoint of $\overline{AC}$

, X and Y are the midpoints of $\overline{AE}$ and $\overline{CE}$ respectively.

Prove that : BD = XY

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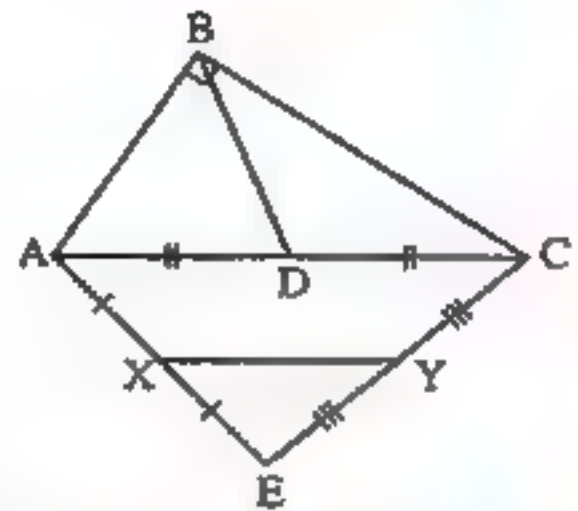
4 [a] In the opposite figure :

$\triangle$ ABC , F and E are the midpoints of $\overline{AB}$ and $\overline{AC}$ respectively.

If BM = 5 cm. , CM = 6 cm. , BC = 12 cm. ,

then find : The perimeter of $\triangle$ MEF
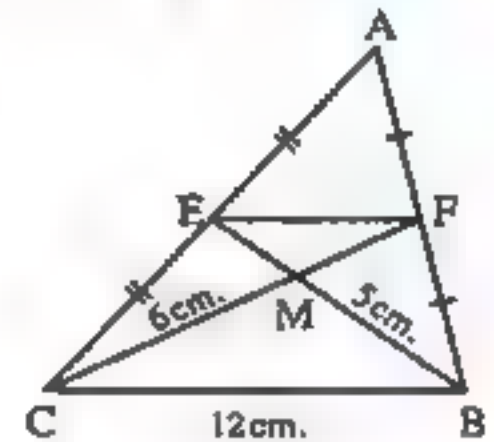
[b] In $\triangle$ ABC , m ($\angle$ A) = 3 X° , m ($\angle$ B) = $(4X - 9)^\circ$

and m ($\angle$ C) = $(2X + 9)^\circ$

Find the measure of each angle and arrange the sides in a descending order according to their lengths.

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5 [a] In the opposite figure :

$\triangle$ ABC , in which : $\overline{AD}$ // $\overline{BC}$

m ($\angle$ DAB) = 40° and m ($\angle$ BAC) = 80°

Prove that : AB > AC
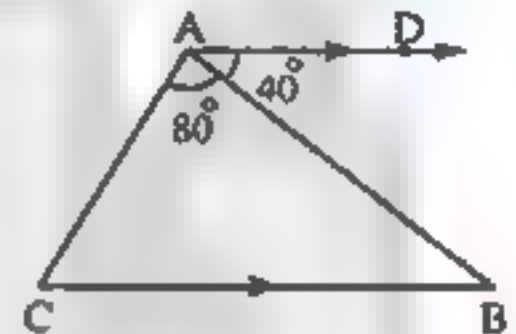
[b] In the opposite figure :

Show with proof , which sides are equal in length.
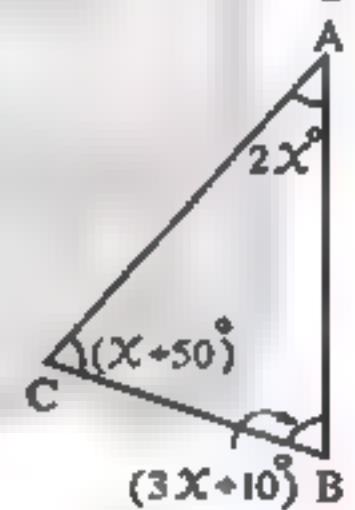
Answer the following questions :

1 Complete each of the following :

① The point of concurrence of medians of a triangle divides each median in ratio
.... : .... from the vertex.

② The longest side in the right-angled triangle is ....

③ The straight line perpendicular to the midpoint of a line segment is called ....

④ The base angles of the isosceles triangle are ....

⑤ In $\triangle$ ABC , if AB < BC < AC , then the greatest angle in measure is ....

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Final Examinations

**2** Choose the correct answer from given ones :

① The number of axes of symmetry in the scalene triangle is ···············

(a) 1   (b) 2   (c) 3   (d) zero

② The measure of the exterior angle of an equilateral triangle is ···············

(a) 90°   (b) 120°   (c) 60°   (d) 30°

③ The numbers 5 , 4 , ··············· can be lengths of sides of a triangle.

(a) 8   (b) 9   (c) 10   (d) 12

④ In $\triangle ABC$, $AB = AC$ and $m (\angle B) = 70°$, then $m (\angle A) = \cdots\cdots$

(a) 140°   (b) 70°   (c) 40°   (d) 110°

⑤ $\triangle ABC$ in which : $m (\angle B) > m (\angle C)$, then AC ··············· AB

(a) >   (b) <   (c) =   (d) ≤

3 [a] In the opposite figure :

ABC is a triangle in which D , E are midpoints

of $\overline{AB}$ and $\overline{AC}$ respectively ,

$MC = 6$ cm. , $MB = 4$ cm. and $BC = 8$ cm.

Find : The perimeter of $\triangle DME$
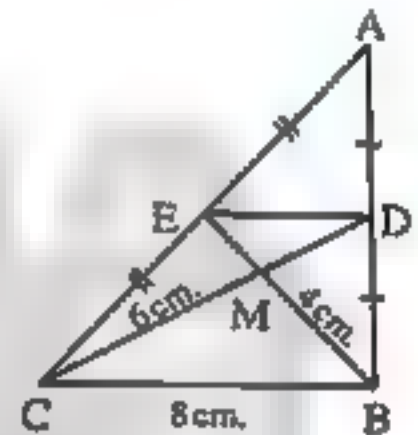
[b] In the opposite figure :

$\overline{AE} \parallel \overline{BC}$

, $m (\angle DAE) = 70°$

, $m (\angle EAC) = 30°$

Prove that : $AC > AB$
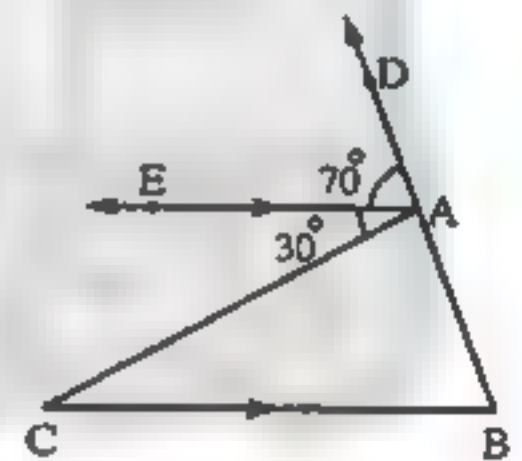
4 [a] In the opposite figure :

ABC is a triangle in which : $m (\angle ABC) = 90°$

, $m (\angle C) = 30°$, X , Y and Z are midpoints of $\overline{AB}$, $\overline{BC}$

and $\overline{XY}$ respectively and $AC = 8$ cm.

Find : The length of each of $\overline{AB}$, $\overline{XY}$, $\overline{BZ}$
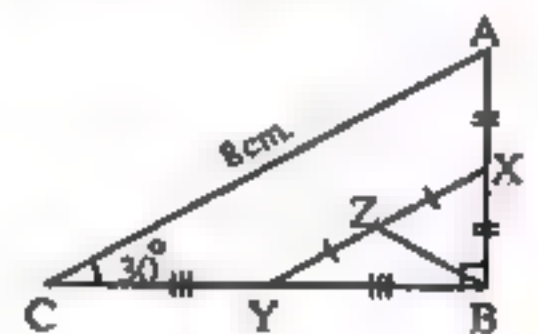
[b] In the opposite figure :

$\overline{AC} \cap \overline{BD} = \{M\}$

, $MB = MC$ and $\overline{AD} \parallel \overline{BC}$
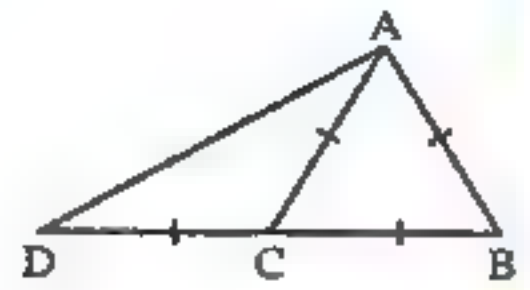
Prove that : $MA = MD$

133
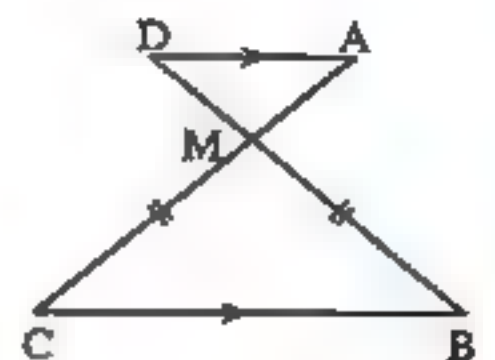
Geometry

5 In the opposite figure :

ABC is an equilateral triangle

, D ∈ $\overrightarrow{BC}$ such that BC = CD

Prove that : $\overline{BA} \perp \overline{AD}$

6 Alexandria Governorate

Middle Educational Directorate
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

① The isosceles triangle has ·············· of symmetry.

(a) one axis   (b) two axes   (c) three axes   (d) zero axes

② In △ ABC , if m (∠ A) = 125° , then the longest side of it is ·············

(a) $\overline{AB}$ (b) $\overline{AC}$ (c) $\overline{BC}$ (d) its median

③ If XYZ is an isosceles triangle , m (∠ Y) = 100° , then m (∠ X) = ·············

(a) 80°   (b) 40°   (c) 20°   (d) 100°

④ In △ ABC if m (∠ A) = 30° , m (∠ B) = 90° , then BC = ·············· AC

(a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) 2

⑤ The measure of each exterior angle of equilateral triangle is ·············

(a) 180°   (b) 360°   (c) 60°   (d) 120°

2 Complete :

① The point of concurrence divides each median in the ratio ·············· from the base.

② The longest side in the right angled triangle is ···············

③ The sum of measures of the exterior angles of a square is ·············· °

④ The numbers 8 , 4 , ·············· can be lengths of sides of an isosceles triangle.

⑤ The axis of symmetry of a line segment is the straight line which is ··············

3 [a] In the opposite figure :

$\overline{AY}$ and $\overline{BX}$ are two medians where $\overline{AY} \perp \overline{BX}$

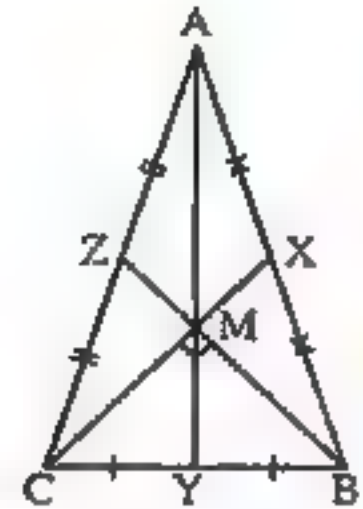, if AY = 12 cm. and XM = 5 cm.

Find : The area of △ ABM
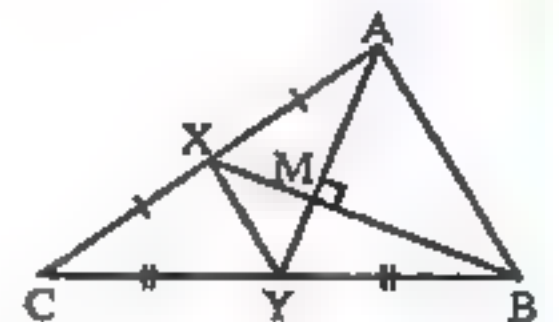
[b] ABC is a triangle in which : m (∠ A) = 6 X° , m (∠ B) = (4 X – 9)° and
m (∠ C) = 3 (X – 2)° Arrange the lengths of sides descendingly.

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4 **[a]** In the opposite figure :

$\overline{BZ}$ and $\overline{CX}$ are two medians of $\triangle ABC$
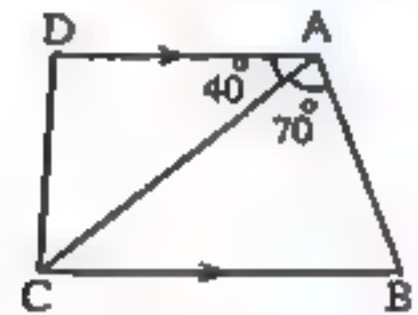
, $\overline{CX} \perp \overline{BZ}$

Prove that : AM = BC

[b] In the opposite figure :

$\overline{AD} // \overline{BC}$, m ($\angle$ DAC) = 40°

, m ($\angle$ BAC) = 70°

Prove that : BC = AC

5 **[a]** In the opposite figure :

AB = AC

Prove that : EC > EF

[b] In the opposite figure :

AB = AC

, $\overline{BD}$ bisects $\angle$ B

, $\overline{CD}$ bisects $\angle$ C

Prove that : BD = CD
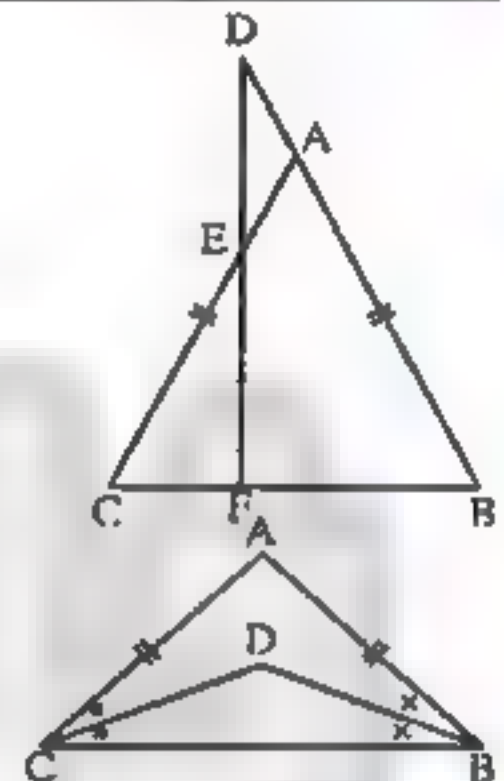
Alexandria Governorate

East Educational Zone
Mathematics Directing

Answer the following questions :

1 **Complete the following :**

① If ABCD is a parallelogram and m ($\angle$ A) = 70° , then m ($\angle$ B) = ·········· °

② The measure of the exterior angle in the equilateral triangle = ··········°

③ The length of the median from the vertex of the right angle
in the right-angled triangle = ···········

④ If AB = AC in $\triangle$ ABC and m ($\angle$ B) = 40° , then m ($\angle$ C) = ··········°

⑤ In $\triangle$ XYZ , if XY < YZ < ZX , then the greatest angle in measure is $\angle$ ···········

2 **Choose the correct answer from those given :**

① The diagonals are perpendicular in ···········

  (a) square and rectangle.　(b) rectangle and rhombus.

  (c) square and rhombus.　(d) parallelogram and rectangle.

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Geometry

② The point of the intersection of the medians in triangle divides each median from the base into the ratio ············

  (a) 1 : 2   (b) 2 : 1   (c) 3 : 1   (d) 2 : 3

③ The isosceles triangle has ············· axis of symmetry.

  (a) 0   (b) 1   (c) 2   (d) 3

④ If the lengths of two sides in an isosceles triangle 3 cm. and 7 cm. , then the length of the third side = ············· cm.

  (a) 3   (b) 4   (c) 7   (d) 10

⑤ In $\triangle ABC$, if $m(\angle A) < m(\angle B)$, then ·············

  (a) $AC < BC$ (b) $AC > BC$ (c) $AC = BC$ (d) $\overline{AC} \parallel \overline{BC}$

---

3 [a] In the opposite figure :

$AB = BD$, $m(\angle BAD) = 70°$

, $\triangle ADC$ is an equilateral triangle.

Find : $m(\angle BDC)$
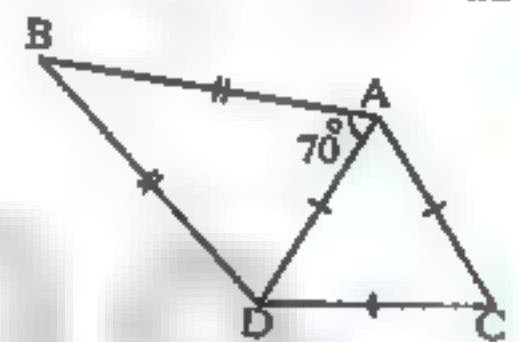
[b] In the opposite figure :

$m(\angle ABC) = m(\angle ADC) = 90°$

, $m(\angle ACB) = 30°$

, E is the midpoint of $\overline{AC}$

Prove that : $AB = ED$

---
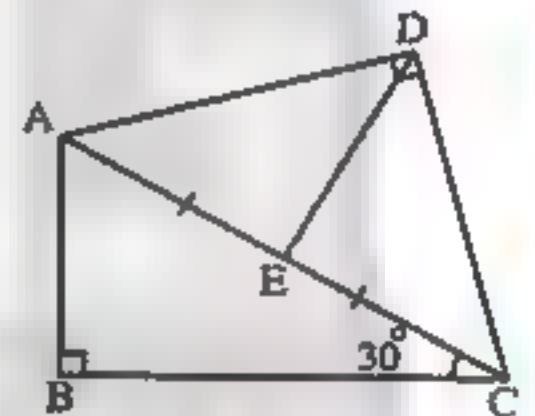
4 [a] In the opposite figure :

$AB = AC$, $DB = DC$, $D \in \overline{AE}$

Prove that :

① $\overline{AE} \perp \overline{BC}$

② $BE = EC$
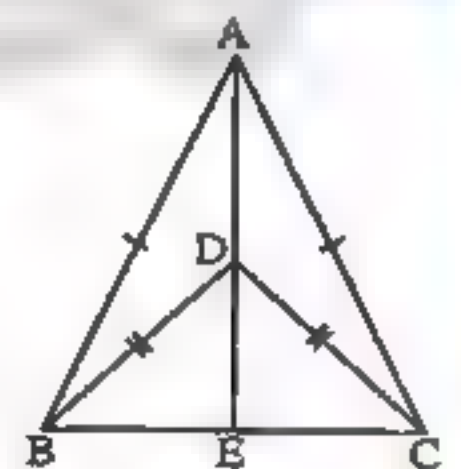
[b] In the opposite figure :

$AB = AC$ and $\overrightarrow{DE} \parallel \overrightarrow{BC}$

Prove that : $AD = AE$

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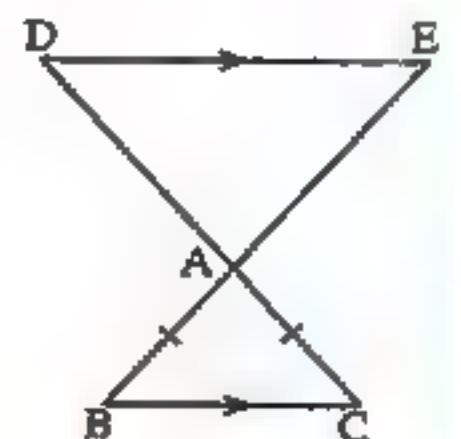
5 **[a]** In the opposite figure :

$AB > AC$, $\overrightarrow{DE} /\!/ \overline{BC}$

Prove that : $AD > AE$
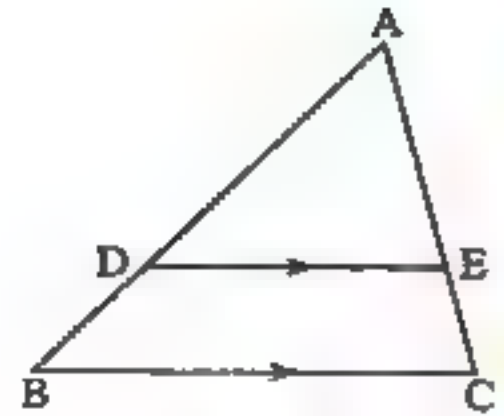
[b] In the opposite figure :

ABCD is a quadrilateral in which :

$AB = 3$ cm. , $BC = 7$ cm.

, $CD = 5$ cm. and $DA = 4$ cm.

Prove that : $m (\angle BAD) > m (\angle BCD)$
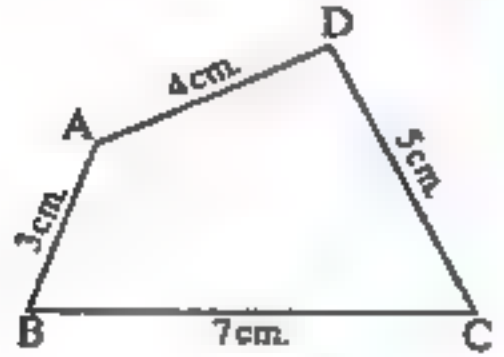
8 | **El-Kalyoubia Governorate**

Al-Obour Educational Zone
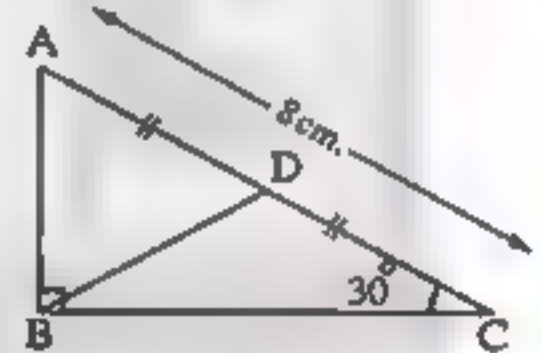Al-Resala Language School

Answer the following questions :

1 Complete the following :

(1) The bisector of the vertex angle of an isosceles triangle bisect the base and ⋯⋯⋯⋯⋯

(2) 3 cm. , 8 cm. and ⋯⋯⋯⋯⋯ cm. are three sides of an isosceles triangle.

(3) In the opposite figure :

The perimeter of △ ABD = ⋯⋯⋯⋯⋯ cm.

(4) The measure of the exterior angle of the equilateral triangle = ⋯⋯⋯⋯°

(5) In △ ABC , $m (\angle A) = 100°$, then the longest side is ⋯⋯⋯⋯

2 Choose the correct answer :

(1) In △ ABC , if $m (\angle B) = 90°$ and $m (\angle A) = 30°$, then BC = ⋯⋯⋯⋯

(a) $\frac{1}{2}$ AC   (b) 2 AC   (c) 2 AB   (d) $\frac{1}{2}$ AB

(2) If A ∈ the axis of symmetry of $\overline{BC}$, then AB = ⋯⋯⋯⋯

(a) XY   (b) XZ   (c) AC   (d) BC

(3) The triangle whose side length are 2 cm. , $(X + 3)$ cm. and 5 cm. becomes an isosceles triangle when $X =$ ⋯⋯⋯⋯ cm.

(a) zero   (b) 1   (c) 2   (d) 3

(4) The number of axis of symmetry of the equilateral triangle = ⋯⋯⋯⋯

(a) zero   (b) 1   (c) 2   (d) 3

Geometry

(5) The sum of the lengths of any two sides in the triangle ········· ······· the length of the third side.

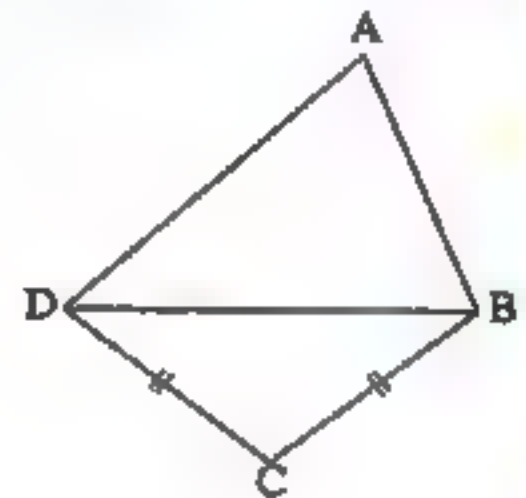(a) <   (b) ≤   (c) ≥   (d) >   (e) =

3 [a] In the opposite figure :

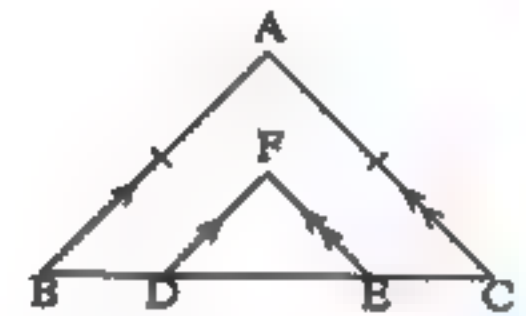ABCD is a quadrilateral in which AD > AB and BC = CD

Prove that : m (∠ ABC) > m (∠ ADC)

[b] In the opposite figure :

D ∈ $\overline{BC}$, E ∈ $\overline{BC}$

, $\overrightarrow{AB}$ // $\overrightarrow{FD}$ and $\overrightarrow{AC}$ // $\overrightarrow{FE}$

, if AB = AC

Prove that : FDE is an isosceles triangle.

4 [a] In the opposite figure :

△ ABC is an equilateral triangle

, $\overrightarrow{BZ}$ bisects ∠ B

, $\overrightarrow{CZ}$ bisects ∠ C

Find : The measure of the angles in triangle CZB
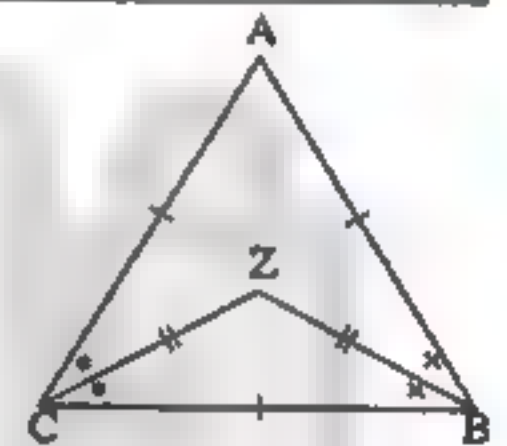
[b] In the opposite figure :

ABCD is a square

, m (∠ AEB) = 60°

, AF = 6 cm. , $\overline{DF}$ ⊥ $\overline{AE}$

Find : The perimeter of the square ABCD
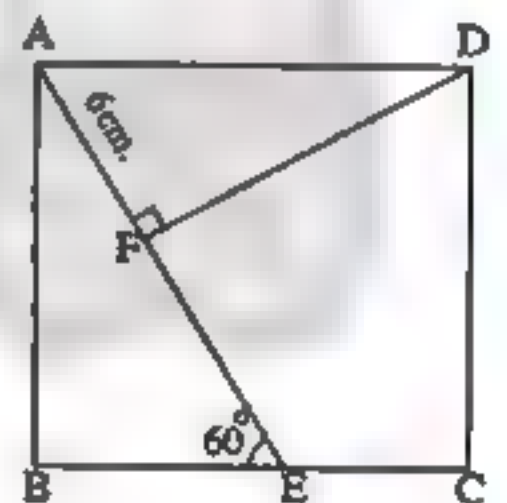
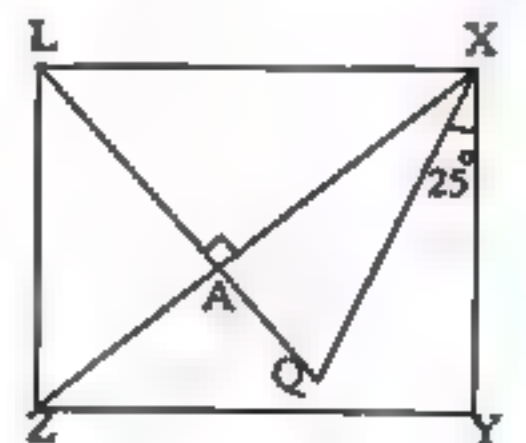**5** [a] In the opposite figure :

XYZL is a rectangle in which m (∠ YXQ) = 25°

, $\overline{LQ}$ ⊥ $\overline{XZ}$

, $\overrightarrow{XQ}$ bisects angle YXZ

Prove that : LQ = XL

[b] In △ ABC , m (∠ A) = 40° , m (∠ B) = 80°

Arrange the length of the sides of the triangle ABC in a descending order.

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9 **El-Monofia Governorate**   Maths Supervision

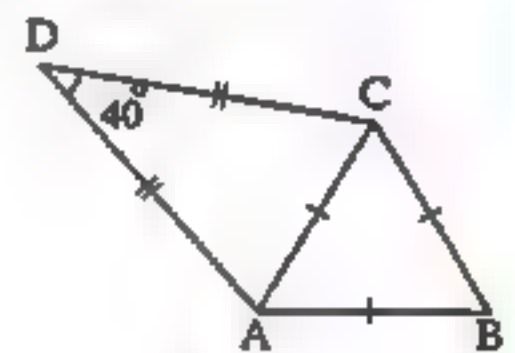## *Answer the following questions :*

1 **Complete :**

(1) The perpendicular which is drawn from vertex of an isosceles triangle to its base ·············· and ···············

(2) The length of the median from the vertex of the right-angled triangle equals ···············

(3) In $\triangle ABC$, if $AB = AC$ and $m(\angle A) = 80°$, then $m(\angle B) =$ ···············°

(4) The measure of the exterior angle of the equilateral triangle $=$ ···············°

(5) In $\triangle DEF$, if $DE > DF$, then $m(\angle F) >$ ·············· ··

2 **Choose the correct answer :**

(1) If the length of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is ··············· cm.

(a) 4   (b) 8   (c) 3   (d) 12

(2) The number of axes of symmetry in the isosceles triangle $=$ ···············

(a) 1   (b) 0   (c) 2   (d) 3

(3) $\overline{AD}$ is a median in $\triangle ABC$, M is the point of intersection of the medians , $MD = 2$ cm. , then $AD =$ ··············· cm.

(a) 2   (b) 4   (c) 6   (d) 8

(4) $\triangle ABC$: $m(\angle B) = 125°$, then the longest side of it is ···············

(a) $\overline{BC}$ (b) $\overline{AC}$ (c) $\overline{AB}$ (d) its median

(5) In $\triangle XYZ$, if $m(\angle Y) = 90°$, $m(\angle X) = 30°$ and $XZ = 20$ cm. , then $ZY =$ ··············· cm.

(a) 12   (b) 6   (c) 24   (d) 10
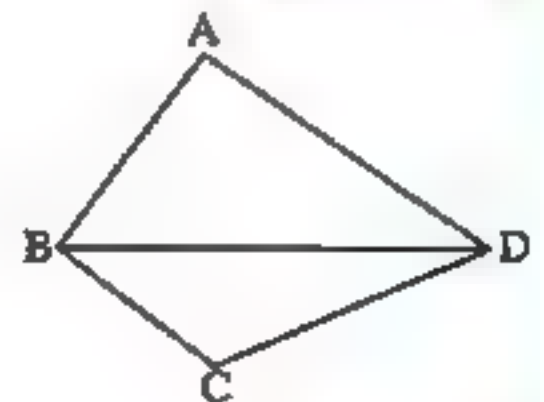
3 **[a] In the opposite figure :**

$m(\angle D) = 40°$, $DA = DC$

and $\triangle ABC$ is an equilateral triangle

Find : $m(\angle DCB)$

[b] In the opposite figure :
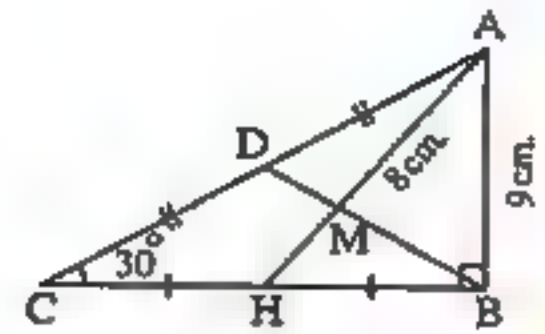
$AB < AD$ and $BC < CD$

Prove that : $m(\angle ABC) > m(\angle ADC)$

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Geometry

4 [a] In the opposite figure :

D and H are the midpoints of $\overline{AC}$ and $\overline{CB}$ respectively

m ($\angle$ C) = 30° , m ($\angle$ B) = 90° , AB = 9 cm. , AM = 8 cm.

Find : The length of each of $\overline{BD}$, $\overline{AH}$ and $\overline{MD}$

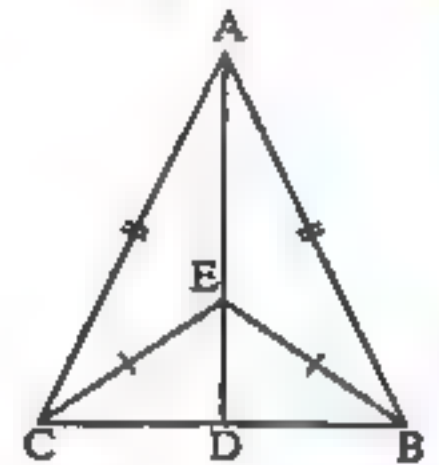[b] In the opposite figure :

AB = AC and EB = EC

Prove that :

① $\overrightarrow{AE}$ is the axis of $\overline{BC}$
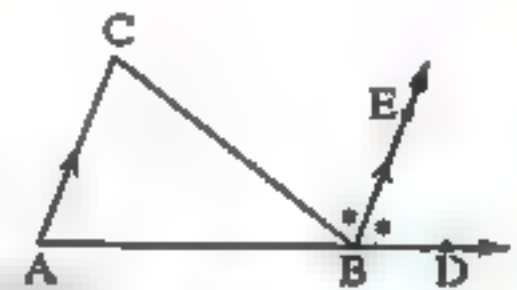
② BD = CB

5 [a] In the opposite figure :

$D \in \overrightarrow{AB}$, $\overrightarrow{BE}$ bisects $\angle$ CBD

and $\overrightarrow{BE}$ // $\overline{AC}$

Prove that :

$\triangle$ ABC is an isosceles triangle,

[b] In $\triangle$ ABC : m ($\angle$ A) = 40° and m ($\angle$ B) = 80°

Arrange the lengths of the sides of the triangle ABC descendingly.

10 **El-Dakahlia Governorate** Math's Supervision (L.E.S.)

Answer the following questions :

1 Complete :

① The number of axes of symmetry of isosceles triangle is ⋯⋯⋯⋯⋯

② The bisector of the vertex angle of the isosceles triangle ⋯⋯⋯⋯ ⋯

③ The medians of the triangle ⋯⋯⋯⋯⋯ at one point.

④ The longest side of the right-angled triangle is the ⋯⋯⋯⋯⋯

⑤ In $\triangle$ ABC , if AB = AC and m ($\angle$ C) = 40° , then m ($\angle$ A) = ⋯⋯⋯⋯ °

2 Choose the correct answer :

① Isosceles triangle whose side lengths are 4 cm. , (X + 3) cm. and 8 cm. , then X = ⋯⋯⋯⋯

 (a) 4   (b) 5   (c) 3   (d) 8

② In $\triangle$ LMN , if m ($\angle$ M) = 55° and m ($\angle$ N) = 80° , then LM ⋯⋯⋯⋯ MN

 (a) <   (b) >   (c) =   (d) twice

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③ The measure of the exterior angle of the equilateral triangle = ·············°

    (a) 30   (b) 60   (c) 90   (d) 120

④ The base angles of the isosceles triangle are ············ ··

    (a) alternating   (b) corresponding   (c) congruent   (d) supplementary

⑤ If $\overline{AD}$ is a median of $\triangle ABC$ and M is the point of concurrence of the medians , then MD = ·············· AD

    (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$

---

3 [a] In the opposite figure :

    $m (\angle ABC) = m (\angle BDE) = 90°$

    , $m (\angle E) = 30°$

    , D is the midpoint of $\overline{AC}$

    Prove that : AC = BE

[b] In the opposite figure :

    $XY = XZ$

    , $QY > QZ$

    Prove that :

    $m (\angle XZQ) > m (\angle XYQ)$

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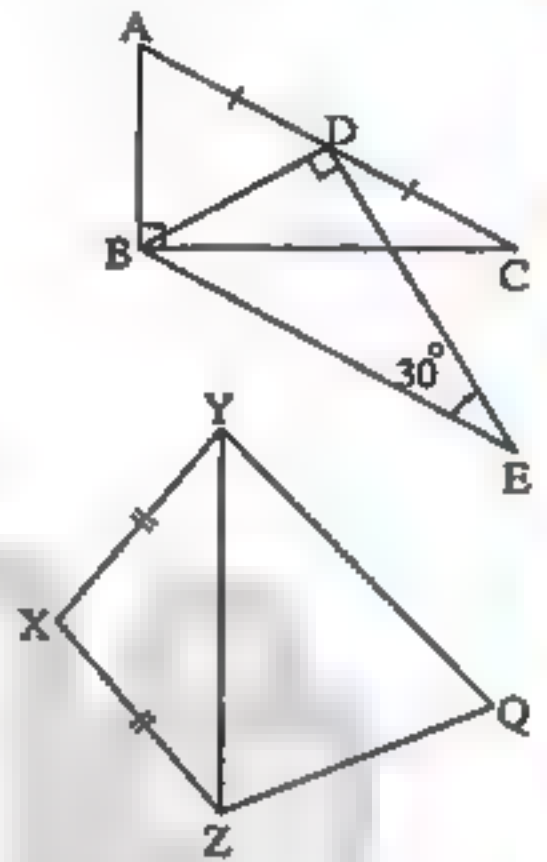
4 [a] In the opposite figure :

    $X \in \overleftrightarrow{BC}$, $\overleftrightarrow{BC} \parallel \overleftrightarrow{PQ}$

    , $m (\angle P) = 110°$

    , $m (\angle A) = 40°$

    Prove that : AB = AC

[b] In the opposite figure :

    $m (\angle ABC) = 90°$

    X , Y , D are midpoints of $\overline{AB}$, $\overline{BC}$, $\overline{XY}$ respectively.

    $AC = 22$ cm.

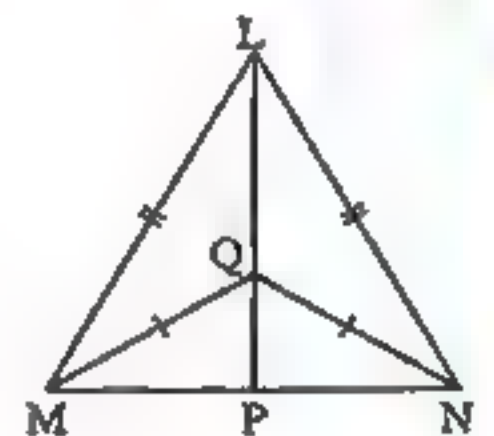   **Find : BD**

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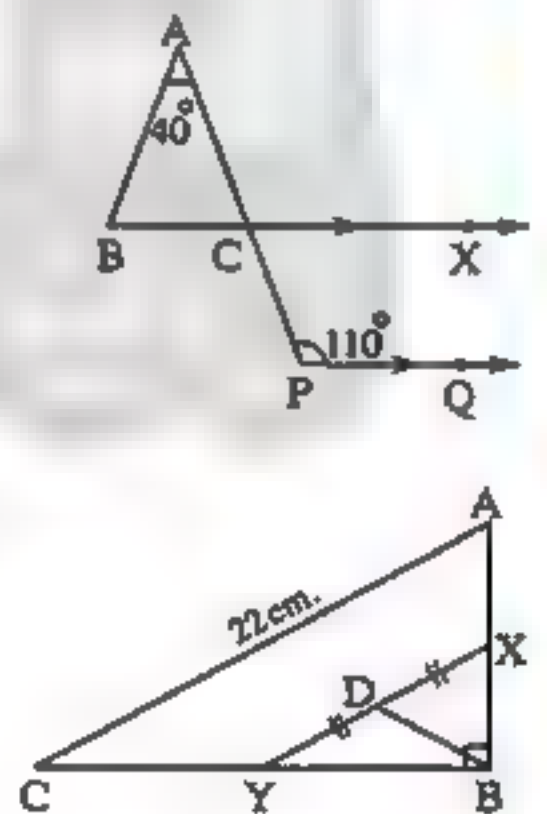
5 [a] In the opposite figure :
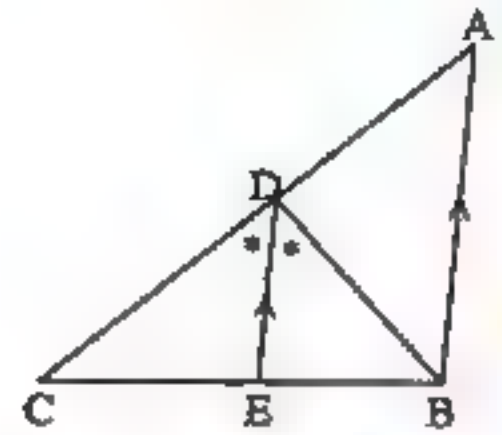
    $LM = LN$

    , $QM = QN$

    Prove that : MP = NP

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Geometry

[b] In the opposite figure :

$\overrightarrow{DE}$ bisects ∠ BDC and $\overrightarrow{DE}$ // $\overrightarrow{AB}$

Prove that :

AC > BC

11 Ismailia Governorate

Answer the following questions :

1 Choose the correct answer :

(1) In the opposite figure :

If m (∠ A) = 90° , $\overrightarrow{AD}$ is a median ,

M is the point of intersection of its medians

and BC = 18 cm. , then MA = ⋯⋯⋯⋯ cm.

(a) 9 cm.　　　(b) 3 cm.　　　(c) 6 cm.　　　(d) 18 cm.

(2) In △ XYZ , if m (∠ Y) < m (∠ Z) , then XY ⋯⋯⋯⋯ XZ

(a) =　　　(b) <　　　(c) >　　　(d) twice

(3) If the measures of two angles of a triangle are 65° and 50° , then the triangle is ⋯⋯⋯

(a) scalene　　　(d) equilateral　　　(c) isosceles　　　(d) right angled

(4) If ABCD is a parallelogram , $x : y = 1 : 2$

, then m (∠ C) = ⋯⋯⋯⋯ °

(a) 60°　　　(b) 120°

(c) 180°　　　(d) 360°
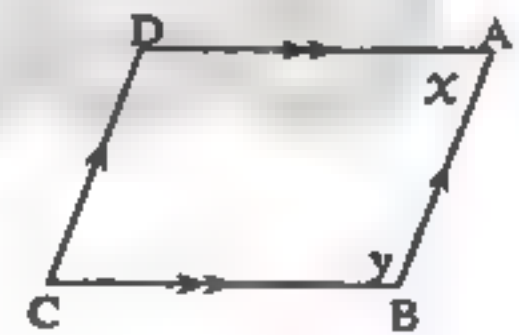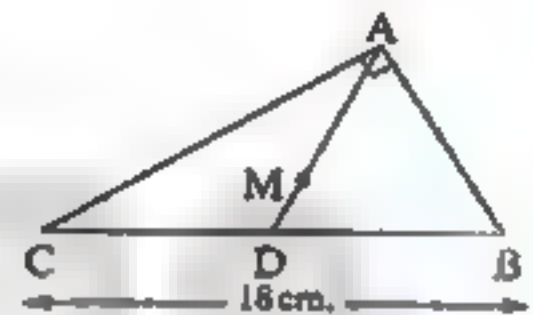
(5) If 10 cm. , 5 cm. and x cm. are side lengths of an isosceles triangle , then x = ⋯⋯⋯⋯ cm.

(a) 10　　　(b) 5　　　(c) 15　　　(d) 4

---

2 Complete :

(1) Number of axes of symmetry of an equilateral triangle = ⋯⋯⋯⋯

(2) The perpendicular from the vertex angle of an isosceles triangle bisects each of ⋯⋯⋯⋯ and ⋯⋯⋯⋯

(3) In △ ABC , if AB = 3 cm. and BC = 5 cm. , then AC ∈] ⋯⋯⋯⋯ , ⋯⋯⋯⋯ [
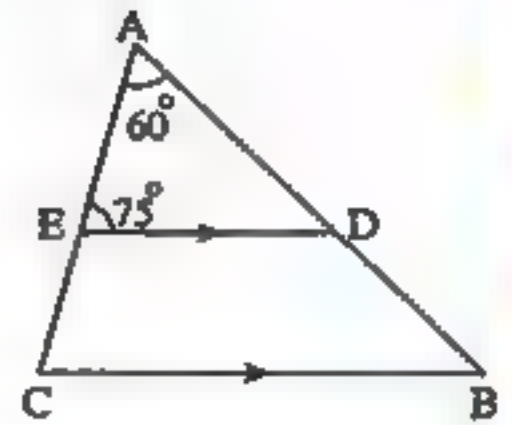
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④ If ABCD is a square , then m (∠ ACB) = ⋯⋯⋯⋯°

⑤ If A ∈ L where L is the axis of symmetry of $\overline{BC}$, then AB ⋯⋯⋯⋯ AC

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3 [a] In the opposite figure :

$\overline{ED} \parallel \overline{BC}$

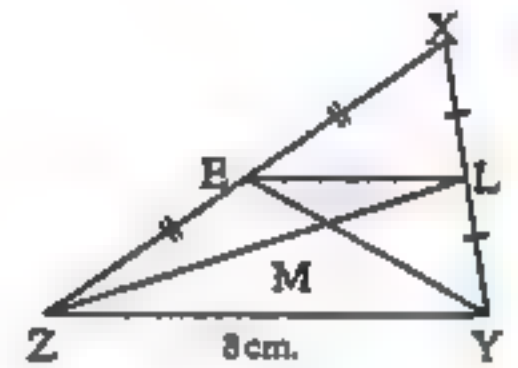, m (∠ A) = 60° and m (∠ AED) = 75°

Prove that : AB > AC

[b] In the opposite figure :

△ XYZ in which : L and E are midpoints

of $\overline{XY}$ and $\overline{XZ}$ respectively.

$\overline{YE} \cap \overline{ZL} = \{M\}$, YZ = 8 cm. , YM = 4 cm. and ZL = 9 cm.

Find : The perimeter of △ EML

---

4 [a] In the opposite figure :

m (∠ B) = 90° , m (∠ ACB) = 30°

E is the midpoint of $\overline{AD}$
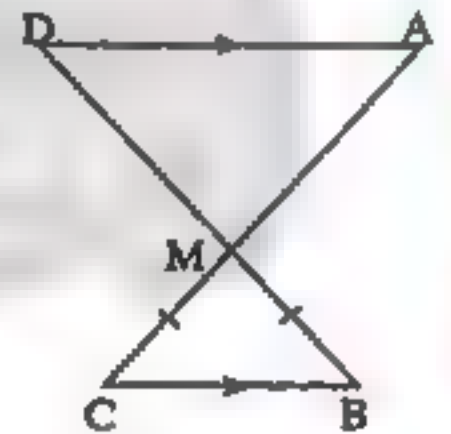
and F is the midpoint of $\overline{CD}$
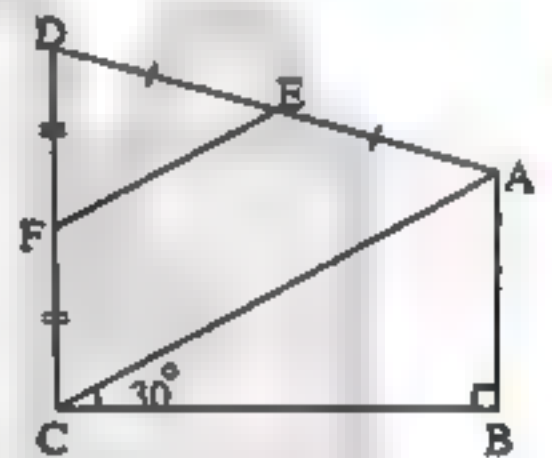
Prove that : AB = EF

[b] In the opposite figure :

If $\overline{AC} \cap \overline{BD} = \{M\}$

, $\overline{AD} \parallel \overline{BC}$ and MB = MC

Prove that : △ MAD is an isosceles.

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5 [a] In △ ABC : If m (∠ A) = 50° and m (∠ B) = 85°

Find : m (∠ C) , then arrange the lengths of its sides ascendingly.

[b] In the opposite figure :

ABCD is a quadrilateral

, AD = 11 cm. , AB = 8 cm.

and CB = CD

Prove that : m (∠ ABC) > m (∠ ADC)

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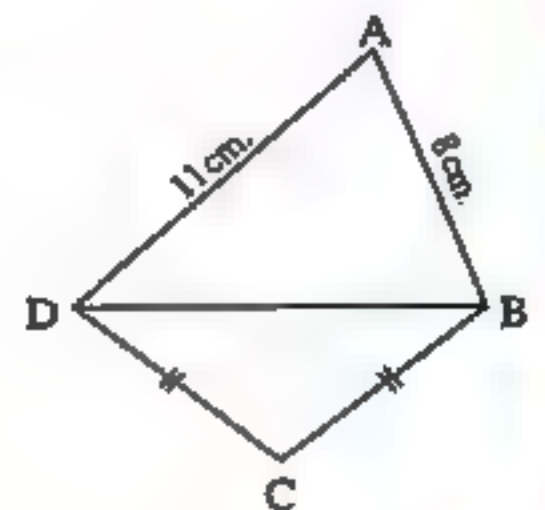
Geometry

12 | Damietta Governorate   Damietta Inspection of Mathematic Official Language Schools

Answer the following questions :

1 Choose the correct answer :

(1) In △ ABC : m (∠ B) = 80° and m (∠ C) = 50° , then AB = ·········· ······

   (a) BC   (b) AC   (c) 2 AC   (d) $\frac{1}{2}$ BC

(2) The lengths 6 cm. , 7 cm. and ············· can be lengths of the sides of a triangle.

   (a) 15 cm.   (b) 13 cm.   (c) 18 cm.   (d) 11 cm.

(3) In △ ABC , if m (∠ A) = 30° and m (∠ B) = 90° , then AC = ··· ·· ·····

   (a) $\frac{1}{2}$ BC   (b) 2 BC   (c) 2 AB   (d) BC

(4) The point of intersection of the medians of the triangle divides each of them with ratio ·············· from the vertex.

   (a) 1 : 2   (b) 3 : 1   (c) 2 : 1   (d) 1 : 3

(5) In △ ABC , m (∠ A) = 50° and m (∠ B) = 100° then ··············

   (a) AB > AC   (b) AC < AB   (c) BC < AC   (d) AB = BC

2 Complete :

(1) The measure of exterior angle of the equilateral triangle = ·············· °

(2) If △ ABC ≡ △ XYZ , then ∠ A ≡ ······· ·······

(3) The longest side in a right-angled triangle is ··············

(4) If $\overrightarrow{XY}$ is an axis of symmetry of $\overline{AB}$, D ∈ $\overrightarrow{XY}$, then AD = ··············

(5) Square with side length 5 cm. , then its area = ·············· cm²

3 [a] In the opposite figure :

   D is a midpoint of $\overline{AC}$

   , m (∠ B) = 90° , m (∠ ACB) = 30°

   Prove that : △ ABD is an equilateral triangle
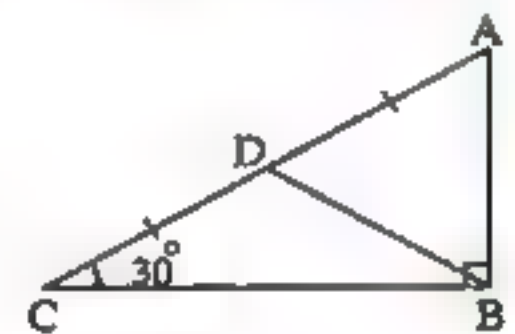
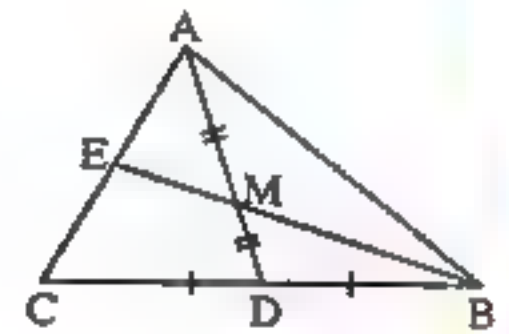[b] In the opposite figure :

   ABCD is a parallelogram

   , CA = CB and m (∠ ACB) = 50°

   Find with proof : m (∠ D)

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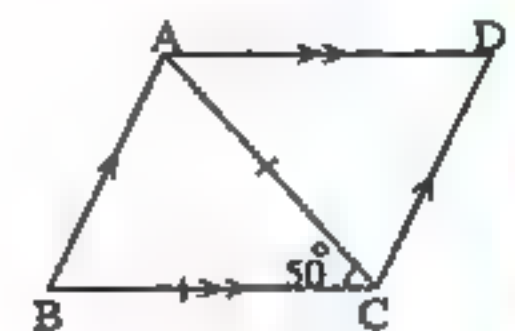
4 [a] In the opposite figure :

E and D are the midpoints of $\overline{AC}$ and $\overline{CB}$ respectively

If AD = 4.5 cm and BM = 4 cm.

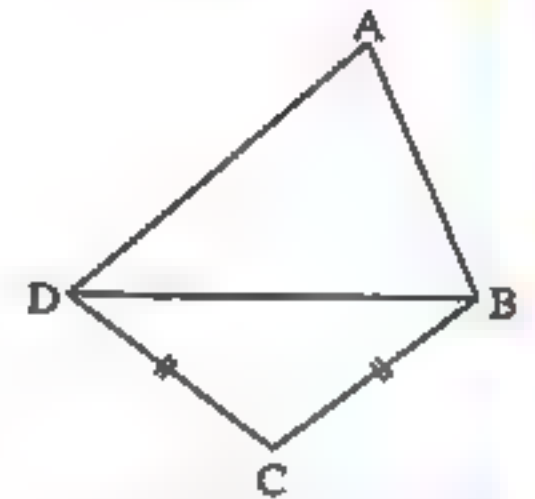**Find :** The length of each of $\overline{MD}$ and $\overline{BE}$

[b] In the opposite figure :

ABCD is a quadrilateral in which : AD > AB

and BC = CD

Prove that :

m (∠ ABC) > m (∠ ADC)

5 [a] ABC is a triangle in which : m (∠ A) = 40° and m (∠ B) = 75°

Arrange the lengths of sides of Δ ABC in ascending order.

[b] In the opposite figure :

m (∠ BAC) = 70° , m (∠ B) = 55°

and m (∠ ACD) = 90°

Prove that : AD > AB

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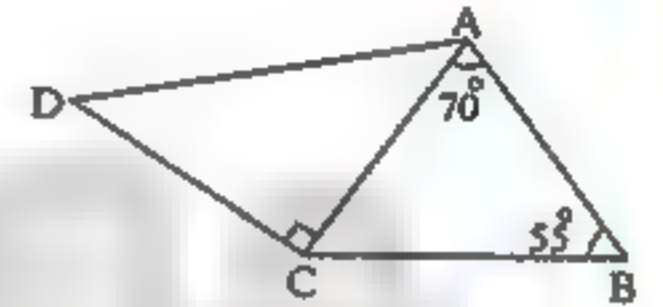
13 ■ **El-Behira Governorate**   Maths Inspection
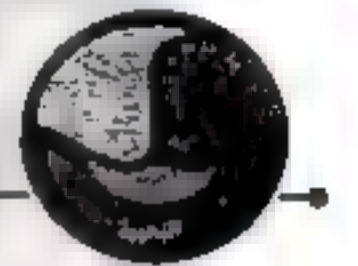
Answer the following questions :

1 **Complete the following :**

① If the length of two sides of isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is ··············

② The number of axis of symmetry of scalene triangle is ··············

③ The length of the median of the right-angled triangle from the vertex of right angle equals ·············· the length of the hypotenuse.

④ The base angles of the isosceles triangle are ·············· in measure.

⑤ In Δ ABC , if m (∠ A) = 40° and m (∠ B) = 60° , then the longest side is ··············

2 **Choose the correct answer :**

① If A lies on the line of symmetry of $\overline{BC}$ then AB ·············· AC

   (a) >   (b) <   (c) =   (d) //

② The measure of the exterior angle of the equilateral triangle = ··············

   (a) 90°   (b) 60°   (c) 120°   (d) 180°

③ In Δ ABC , if BC > AC , then m (∠ A) ·············· m (∠ B)

   (a) >   (b) <   (c) =   (d) ≥

Geometry

④ If △ ABC is a right-angled triangle at B and m (∠ C) = 30° , then AB = ·········· AC

   (a) 2   (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) 3

⑤ The sum of lengths of two sides of a triangle is ·········· the length of the third side.

   (a) greater than   (b) less than   (c) equal   (d) greater than or equal

3 **[a]** In the opposite figure :

AB = AC , $\overline{EF}$ // $\overline{CB}$
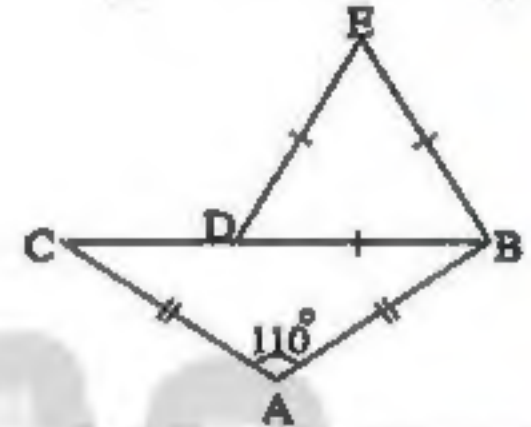
Prove that : AE = AF
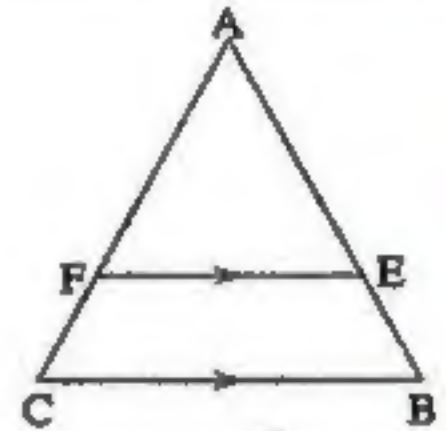
[b] In the opposite figure :

EB = ED = DB

, AB = AC

and m (∠ A) = 110°

Find : m (∠ ABE)

4 **[a]** In △ ABC , if m (∠ A) = 50° and m (∠ B) = 60°

Arrange the side lengths of △ ABC ascendingly.

[b] In the opposite figure :

m (∠ ABC) = 90° , m (∠ C) = 30° , AD = DC and AC = 10 cm.

Find : The perimeter of △ ABD
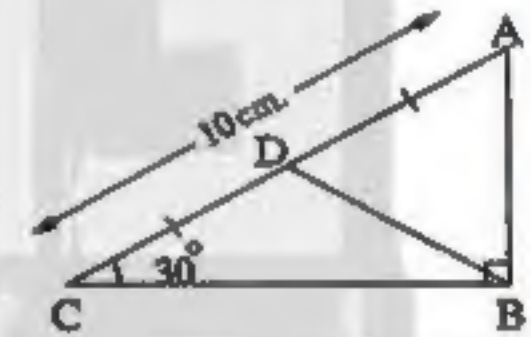
5 In the opposite figure :

AE = EB , AD = DC

, MB = 8 cm. , MC = 6 cm.

and BC = 12

Find : The perimeter of △ MED

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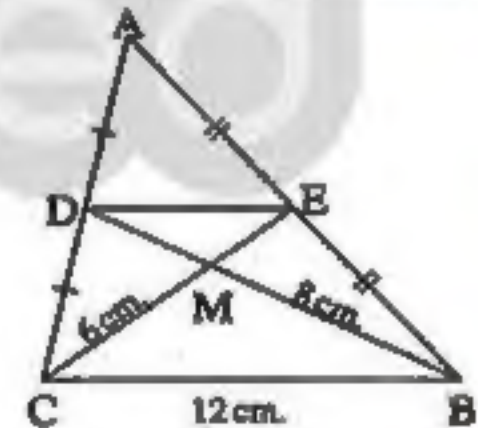
14   **El-Minia Governorate**   El-Minia Directorate of Education
                                       Governmental languages schools

Answer the following questions :

1 Complete the following : (Calculator is allowed)

① The number of axes of symmetry in the equilateral triangle equals ··········

② If the length of two sides in a triangle are 2 cm. and 7 cm.

   , then ·········· < length of third side < ··········

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Final Examinations

③ The length of median which drawn from the vertex of the right-angle in the right-angled triangle equals ··············

④ If the measure of an angle in an isosceles triangle is 60° , then the triangle is ··············

⑤ The length of the side opposite to the angle of measure 30° in the right-angled triangle equals ··············

---

2 **Choose the correct answer :**

① XYZ is a triangle in which : m ($\angle$ Z) = 70° and m ($\angle$ Y) = 60° then YZ ·············· XY

(a) >   (b) <   (c) =   (d) twice

② The numbers which can be lengths of sides of triangle are ··············

(a) 0 , 3 , 5   (b) 3 , 3 , 5   (c) 3 , 3 , 6   (d) 3 , 3 , 7

③ The measure of the exterior angle of the equilateral triangle equals ··············°

(a) 60   (b) 30   (c) 100   (d) 120

④ If the length of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is ·············· cm.

(a) 4   (b) 8   (c) 3   (d) 12

⑤ If $\triangle$ ABC is a right-angled at B , AB = 6 cm. and BC = 8 cm. , then the length of the median drawn from B is ·············· cm.

(a) 10   (b) 8   (c) 6   (d) 5

---

3 [a] In $\triangle$ ABC , AB = 7 cm. , BC = 5 cm. and AC = 6 cm.

Arrange its angles measures ascendingly.

[b] In the opposite figure :

$\triangle$ XYZ in which : L and E are the midpoints of $\overline{XY}$ and $\overline{XZ}$ respectively

, $\overline{YE} \cap \overline{ZL} = \{M\}$

, YZ = 8 cm. , YM = 6 cm. , ZM = 4 cm.

Find : The perimeter of $\triangle$ MLE
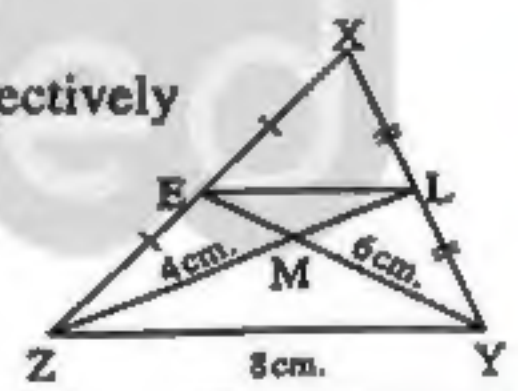
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4 [a] In the opposite figure :

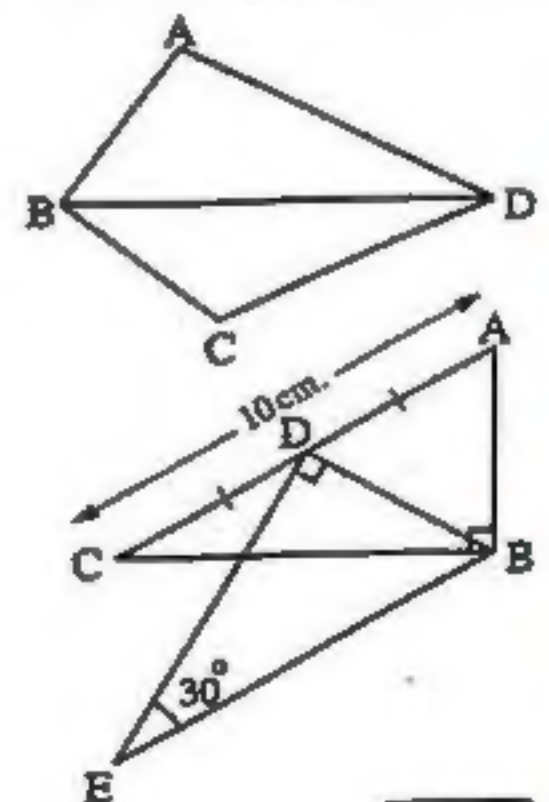AB < AD , BC < CD

Prove that : m ($\angle$ ABC) > m ($\angle$ ADC)

[b] In the opposite figure :

m ($\angle$ ABC) = m ($\angle$ BDE) = 90°

, D is the midpoint of $\overline{AC}$

, m ($\angle$ E) = 30° and AC = 10 cm.

Find : The length of $\overline{BE}$

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Geometry

5 [a] In the opposite figure :

AB = AC , $\overrightarrow{BD}$ bisects ∠ B

and $\overrightarrow{CD}$ bisects ∠ C

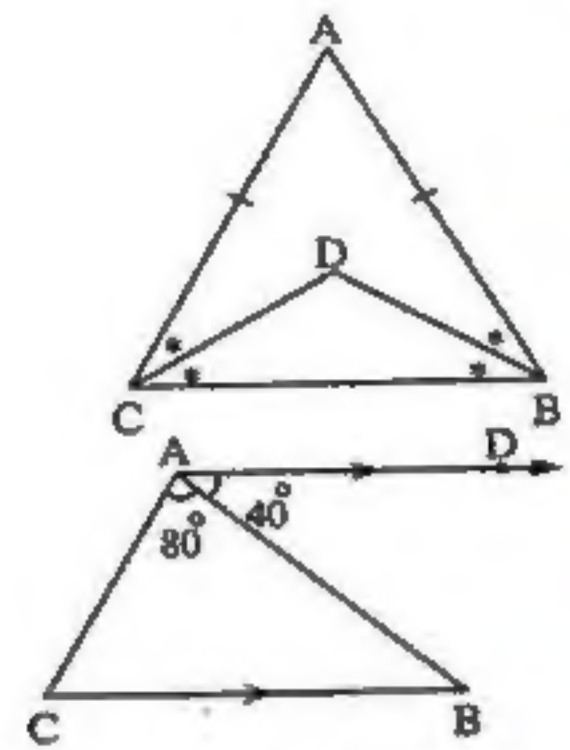**Prove that :** Δ DBC is an isosceles triangle.

[b] In the opposite figure :

Δ ABC in which : $\overrightarrow{AD} \parallel \overline{CB}$

, m (∠ DAB) = 40° and m (∠ BAC) = 80°

Prove that : AB > AC

15 **South Sinai Governorate**

Answer the following questions :

1 **Choose the correct answer from given answers :**

(1) In isosceles triangle the base angles are ··············

(a) complementary. (b) supplementary. (c) adjacent. (d) congruent.

(2) The sum of the lengths of the two sides of the triangle ··············· the length of the third side.

(a) double (b) equals (c) greater than (d) less than

(3) In the opposite figure :

If AB = 12 cm.

, then CD = ··············· cm.

(a) 12 (b) 9

(c) 6 (d) 3

(4) The triangle that has one axis of symmetry is ··············· triangle.

(a) an equilateral (b) an isosceles (c) a scalene (d) a right-angled

(5) The ··············· is a parallelogram where one of its angles is right angle.

(a) a rectangle (b) a square (c) a rhombus (d) a trapezium
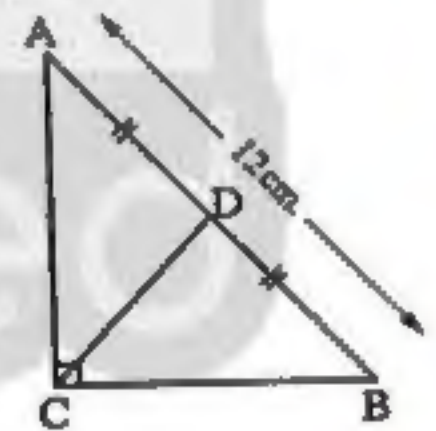
2 **Complete the following :**

(1) The point that divides the median of the triangle in the ratio 1 : 2 from the base is the point of intersection of ···············

(2) In Δ ABC , if AB > BC , then m (∠ A) < m (∠ ···············)

(3) The sum of the measures of accumulative angles at point is ···············°

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(4) ABC is a triangle in which : m (∠ B) = 130° , then the longest side of its sides

is ....

(5) In the right-angled triangle , the length of the side that opposite to the angle

of measure 30° = ... the length of the hypotenuse.

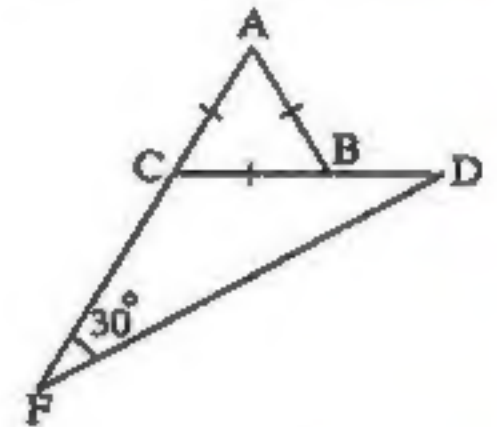**3** [a] In the opposite figure :

ABC is an equilateral triangle

, F ∈ $\overrightarrow{AC}$, D ∈ $\overrightarrow{CB}$

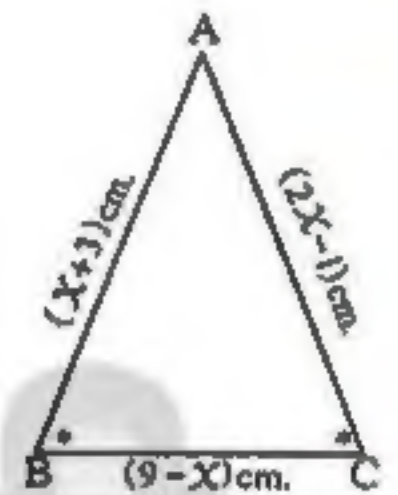, m (∠ DFC) = 30°

Prove that : Δ DCF is an isosceles triangle.

[b] In the opposite figure :

ABC is a triangle in which :
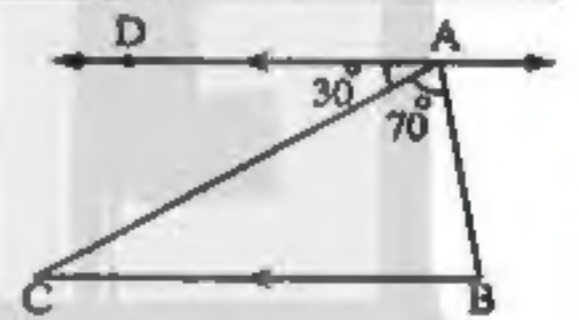
m (∠ B) = m (∠ C)

Find :

The perimeter of Δ ABC

4 [a] In the opposite figure :

$\overrightarrow{AD}$ // $\overline{BC}$, m (∠ BAC) = 70°

and m (∠ DAC) = 30°

Prove that : AC > BC

[b] ABC is a triangle in which : AB = 7 cm. , BC = 5 cm. and AC = 6 cm.

Arrange the measures of its angles in an ascending order.
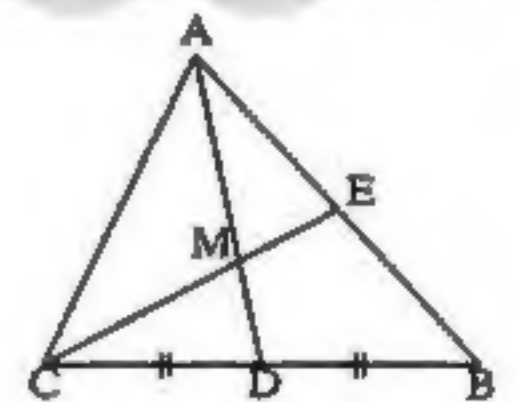
5 [a] In the opposite figure :

ABC is a triangle

, D is the midpoint of $\overline{BC}$, M ∈ $\overline{AD}$

, where AM = 2 MD

Draw $\overrightarrow{CM}$ cuts $\overline{AB}$ at E , if EC = 12 cm.

, find : The length of $\overline{EM}$

[b] In the opposite figure :

BA = BC

and $\overrightarrow{BE}$ bisects ∠ CBD

Prove that : $\overrightarrow{BE}$ // $\overline{AC}$

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